

AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON APRIL 15, 1999

REGISTRATION NO. 333-74599

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

AMENDMENT NO. 1  
TO  
FORM S-3  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

HARMONIC INC.  
(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE  
(STATE OR OTHER JURISDICTION OF  
INCORPORATION OR ORGANIZATION)

77-0201147  
(I.R.S. EMPLOYER  
IDENTIFICATION NUMBER)

549 BALTIC WAY  
SUNNYVALE, CALIFORNIA 94089  
(408) 542-2500  
(ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF  
REGISTRANT'S PRINCIPAL EXECUTIVE OFFICES)

ANTHONY J. LEY  
CHIEF EXECUTIVE OFFICER  
HARMONIC, INC.  
549 BALTIC WAY  
SUNNYVALE, CALIFORNIA 94089  
(408) 542-2500  
(NAME, ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE,  
OF AGENT FOR SERVICE)

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APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:  
As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on  
a delayed or continuous basis pursuant to Rule 415 under the Securities Act of  
1933, check the following box. [ ]

If any of the securities being registered on this Form are to be offered on  
a delayed or continuous basis pursuant to Rule 415 under the Securities Act of  
1933, other than securities offered only in connection with dividend or interest  
reinvestment plans, check the following box. [ ]

If this Form is filed to register additional securities for an offering

pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. [ ]

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

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Filed Pursuant to Rule 424(a)  
Registration No. 333-74599

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

PROSPECTUS

SUBJECT TO COMPLETION. DATED MARCH 29, 1999.

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2,800,000 Shares

LOGO

Common Stock

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Harmonic Inc. is offering 2,000,000 shares to be sold in the offering. The selling stockholders identified in this prospectus are offering an additional 800,000 shares. Harmonic will not receive any of the proceeds from the sale of shares by the selling stockholders.

On March 24, the last reported sale price of the common stock on the Nasdaq National Market was \$25.125 per share. The common stock is traded under the Nasdaq symbol "HLIT."

SEE "RISK FACTORS" BEGINNING ON PAGE 4 TO READ ABOUT CERTAIN FACTORS YOU SHOULD CONSIDER BEFORE BUYING SHARES OF OUR COMMON STOCK.

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	PER SHARE	TOTAL
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Public offering price.....	\$	\$
Underwriting discount.....	\$	\$
Proceeds, before expenses, to Harmonic.....	\$	\$
Proceeds, before expenses, to the selling stockholders.....	\$	\$

Delivery of the shares of common stock will be made on or about , 1999, against payment in immediately available funds.

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Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

WARBURG DILLON READ LLC  
CIBC WORLD MARKETS  
SG COWEN  
SOUNDVIEW TECHNOLOGY GROUP

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[LOGO]

[Graphic depicting broadband hybrid fiber coax network delivery of video, Internet and telephony services. Graphic displays various Harmonic products throughout the network.]

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#### PROSPECTUS SUMMARY

You should read the following summary together with the more detailed information regarding our company and the common stock being sold in this offering and our consolidated financial statements and notes to those statements appearing elsewhere in this prospectus.

#### HARMONIC INC.

Harmonic designs, manufactures and markets digital and fiber optic systems for delivering video, voice and data services over cable, satellite and wireless networks. Our advanced solutions enable cable television and other network operators to provide a range of broadcast and interactive broadband services that include high-speed Internet access, telephony and video on demand. We offer an array of fiber optic transmission and digital headend products for hybrid fiber coax, satellite and wireless networks. In addition, we have recently developed and expanded our product offerings to include high-speed data delivery hardware and software.

The demand for broadband access has increased significantly in recent years due in large part to the dramatic growth of the Internet, which has facilitated commercial applications such as telecommuting and electronic commerce as well as widespread use of the Web for communicating and accessing information. Increased demand for high-speed broadband access at home, combined with recent regulatory reform, has spurred competition among communications service providers worldwide to offer combinations of video, voice and data services. Bottlenecks in the "last mile" of the communications infrastructure where homes connect to the local network, however, have limited the ability of service providers to offer such services. Cable networks, which pass more than 90% of U.S. homes, are increasingly being recognized as an attractive alternative for delivery of these interactive broadband services. In this regard, in March 1999, AT&T acquired TCI for approximately \$60 billion and has announced plans to offer these services, including telephony, on a broad scale over TCI's cable systems in the next few years.

Cable networks were originally designed for the one-way transmission of broadcast video and, therefore, cable operators have been constrained in their ability to offer two-way digital services, such as high-speed Internet access and telephony. In order to reliably deliver interactive services to large numbers of subscribers, cable networks will need to deploy fiber closer to the subscriber and therefore increase the amount of optical fiber and fiber optic equipment in a cable network. While many cable operators have been slow to upgrade their networks due to capital constraints, recent consolidation and substantial new investments in the cable industry are providing the capital necessary to accelerate this upgrade. We believe that the upgrade of cable networks to meet market demands presents a significant opportunity for broadband communications equipment vendors such as Harmonic. Moreover, with the recent expansion of our product offerings, we believe that Harmonic can benefit from the growth in services offered by satellite, wireless and other broadband service providers.

Harmonic's digital and fiber optic systems enable cable and other broadband service providers to deliver a variety of interactive broadband services. Our

product offerings are comprised of fiber optic transmission systems, TRANsend digital headend systems and CyberStream data delivery products. We will continue to develop new products to assist cable operators in the introduction of new broadband services and in the design of new network architectures. Our recently introduced DWDM and scaleable node products, for example, illustrate our commitment to assisting our customers to reliably and cost-effectively equip their networks for the deployment of new services. In addition, our TRANsend digital headend platform allows wireless and satellite providers to combine content from a variety of sources for seamless integration and delivery of digital video and high speed data.

Our products are primarily sold to cable television operators worldwide, either directly or through our international distributors. We also sell products designed for use by satellite and wireless network

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operators, as well as telephone companies. Our U.S. customers include TCI, Time Warner, Comcast and Cox, and our international customers include Rogers and Videotron in Canada, a provincial PTT in China and Telewest in the U.K.

Harmonic was incorporated in California in June 1988 and reincorporated into Delaware in May 1995. On March 22, 1999, we changed our corporate name from Harmonic Lightwaves, Inc. to Harmonic Inc. Our principal offices are located at 549 Baltic Way, Sunnyvale, California 94089 and our telephone number is (408) 542-2500.

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THE OFFERING

The following information assumes that the underwriters do not exercise the option granted by Harmonic to purchase additional shares in the offering. See "Underwriting."

Shares offered by Harmonic.....	2,000,000 shares
Shares offered by the selling stockholders.....	800,000 shares
Shares to be outstanding after the offering(1).....	13,743,582 shares
Nasdaq National Market symbol.....	"HLIT"
Use of Proceeds.....	For general corporate purposes, including working capital, capital expenditures and repayment of debt.

SUMMARY CONSOLIDATED FINANCIAL INFORMATION  
(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)

	QUARTERS ENDED			
	APRIL 3, 1998	JULY 3, 1998	OCTOBER 2, 1998	DECEMBER 31, 1998
CONSOLIDATED STATEMENT OF OPERATIONS DATA:				
Net sales.....	\$ 16,204	\$18,174	\$22,382	\$27,097
Cost of sales.....	11,114	11,512	13,948	16,728
Gross profit.....	5,090	6,662	8,434	10,369
Operating expenses:				
Research and development.....	3,423	3,243	3,507	3,351
Sales and marketing.....	4,072	4,797	4,436	4,857
General and administrative.....	2,148	1,551	1,535	1,578
Acquired in-process technology.....	14,000	--	--	--
Total operating expenses.....	23,643	9,591	9,478	9,786
Income (loss) from operations(2).....	(18,553)	(2,929)	(1,044)	583
Interest and other income, net.....	188	44	213	45

Income (loss) before income taxes(2).....	(18,365)	(2,885)	(831)	628
Provision for income taxes.....	--	--	--	--
Net income (loss) (2).....	\$ (18,365)	\$ (2,885)	\$ (831)	\$ 628
Diluted net income (loss) per share(3).....	\$ (1.60)	\$ (0.25)	\$ (0.07)	\$ 0.05
Diluted weighted average common shares(3).....	11,475	11,591	11,674	12,625

DECEMBER 31, 1998

	ACTUAL	AS ADJUSTED(4)
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CONSOLIDATED BALANCE SHEET DATA:

Cash and cash equivalents.....	\$ 9,178	\$ 55,612
Working capital.....	32,318	78,929
Total assets.....	62,424	108,858
Long-term debt, less current portion.....	400	--
Stockholders' equity.....	43,474	90,485

- (1) Based upon shares outstanding as of December 31, 1998. Excludes 2,584,779 shares of common stock reserved for issuance under Harmonic's stock option and stock purchase plans, of which 2,123,148 shares were subject to outstanding options as of December 31, 1998. Includes 17,738 shares of common stock issued upon the net exercise of a warrant subsequent to December 31, 1998. Excludes 720,000 shares issuable upon the exercise of an outstanding warrant held by Scientific-Atlanta with an exercise price of \$5.55 per share, which shares are offered hereby. The as adjusted number excludes the proceeds payable to Harmonic upon exercise of the Scientific-Atlanta warrant. See "Capitalization," "Management -- Incentive Stock Plans," "Selling Stockholders," "Description of Capital Stock" and Notes 8, 9 and 14 of Notes to Consolidated Financial Statements.
- (2) The 1998 loss from operations and net loss include a one-time charge of \$14.0 million for acquired in-process technology. See Note 2 of Notes to Consolidated Financial Statements.
- (3) See Note 5 of Notes to Consolidated Financial Statements for a discussion of the shares used to compute diluted net income (loss) per share.
- (4) Gives effect to the sale of the 2,000,000 shares of common stock offered by Harmonic hereby at an assumed public offering price of \$25.125 per share and the application of the net proceeds therefrom, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by Harmonic and the repayment of \$577,000 of indebtedness. Does not give effect to proceeds payable to Harmonic from the exercise of the Scientific-Atlanta warrant for an aggregate exercise price of \$3,996,000. See "Use of Proceeds."

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RISK FACTORS

You should carefully consider the risks described below together with all of the other information included in or incorporated by reference into this prospectus before making an investment decision. The risks and uncertainties described below are not the only ones facing our company. If any of the following risks actually occurs, our business, financial condition or results of operations could be materially adversely affected. In such case, the trading price of our common stock could decline, and you may lose all or part of your investment.

OUR OPERATING RESULTS ARE LIKELY TO FLUCTUATE SIGNIFICANTLY AND MAY FAIL TO MEET OR EXCEED THE EXPECTATIONS OF SECURITIES ANALYSTS OR INVESTORS, CAUSING OUR STOCK PRICE TO DECLINE.

Our operating results have fluctuated in the past and are likely to continue to fluctuate in the future, on an annual and a quarterly basis, as a result of several factors, many of which are outside of our control. Some of the

factors that may cause these fluctuations include:

- the level of capital spending of our customers, both in the U.S. and in foreign markets;
- changes in market demand;
- the timing and amount of customer orders;
- competitive market conditions;
- our unpredictable sales cycles;
- new product introductions by our competitors or by us;
- changes in domestic and international regulatory environments;
- market acceptance of new or existing products;
- the cost and availability of components, subassemblies and modules;
- the mix of our customer base and sales channels;
- the mix of our products sold;
- our development of custom products;
- the level of international sales; and
- economic conditions specific to the cable television industry and general economic conditions.

In addition, we often recognize a substantial portion of our revenues in the last month of the quarter. We establish our expenditure levels for product development and other operating expenses based on projected sales levels, and expenses are relatively fixed in the short term. Accordingly, variations in timing of sales can cause significant fluctuations in operating results. In addition, because a significant portion of our business is derived from orders placed by a limited number of large customers, the timing of such orders can also cause significant fluctuations in our operating results. Our expenses for any given quarter are typically based on expected sales and if sales are below expectations in any given quarter, the adverse impact of the shortfall on our operating results may be magnified by our inability to adjust spending to compensate for the shortfall. As a result of all these factors, our operating results in one or more future periods may fail to meet or exceed the expectations of securities analysts or investors. In that event, the trading price of our common stock would likely decline.

WE DEPEND ON CABLE INDUSTRY CAPITAL SPENDING FOR SUBSTANTIALLY ALL OF OUR REVENUE.

Almost all of our sales have been derived, directly or indirectly, from sales to cable television operators and we expect these sales to constitute a substantial majority for the foreseeable future. Demand for our products depends to a significant extent upon the magnitude and timing of capital spending by cable television operators for constructing, rebuilding or upgrading their systems. The capital spending patterns

of cable television operators are dependent on a variety of factors, including:

- access to financing;
- cable television operators' annual budget cycles;
- the status of federal, local and foreign government regulation of telecommunications and television broadcasting;
- overall demand for cable television services and the acceptance of new broadband services;
- competitive pressures (including the availability of alternative video

delivery technologies such as satellite broadcasting); and

- discretionary customer spending patterns and general economic conditions.

Our net sales in the second half of 1997 and the first quarter of 1998 were negatively affected by a slow-down in spending by cable television operators in the U.S. and in foreign markets. The factors contributing to this slow-down in capital spending included:

- consolidation and system exchanges by our domestic cable customers, which generally have had the initial effect of delaying certain system upgrades;
- uncertainty related to development of digital video and cable modem industry standards;
- delays associated with the evaluation of new services and system architectures by many cable television operators;
- emphasis on marketing and customer service strategies by some international cable television operators instead of construction of networks; and
- general economic conditions in international markets.

While our net sales increased in the last three quarters of 1998 from the level achieved in the first quarter of 1998 due to increased spending in the U.S. cable television industry, spending by international cable television operators generally remained weak. We cannot predict when international cable television spending will increase and whether U.S. cable television spending will continue to grow. In addition, cable television capital spending can be subject to the effects of seasonality, with fewer construction and upgrade projects typically occurring in winter months and otherwise being affected by inclement weather.

OUR CUSTOMER BASE IS CONCENTRATED AND THE LOSS OF ONE OR MORE OF OUR KEY CUSTOMERS WOULD HARM OUR BUSINESS.

Historically, a significant majority of our sales have been to relatively few customers. Sales to our ten largest customers in 1996, 1997 and 1998 accounted for approximately 72%, 56% and 66%, respectively, of net sales. Due in part to the consolidation of ownership of domestic cable television systems, we expect that sales to relatively few customers will continue to account for a significant percentage of our net sales for the foreseeable future. For example, in 1998, sales to Tele-Communications, Inc., or TCI, which was recently acquired by AT&T, represented approximately 17% of our net sales and sales to a Chinese distributor represented approximately 11%. Almost all of our sales are made on a purchase order basis, and none of our customers has entered into a long-term agreement requiring it to purchase our products. The loss of, or any reduction in orders from, a significant customer would harm our business.

WE DEPEND ON OUR INTERNATIONAL SALES AND ARE SUBJECT TO THE RISKS ASSOCIATED WITH INTERNATIONAL OPERATIONS.

Sales to customers outside of the United States in 1996, 1997 and 1998 represented 57%, 59% and 43% of net sales, respectively, and we expect that international sales will continue to represent a substantial portion of our net sales for the foreseeable future. Our international operations are subject to a number of risks, including:

- changes in foreign government regulations and telecommunications standards;

- import and export license requirements, tariffs, taxes and other trade barriers;
- fluctuations in currency exchange rates;
- difficulty in collecting accounts receivable;
- the burden of complying with a wide variety of foreign laws, treaties and

technical standards;

- difficulty in staffing and managing foreign operations; and
- political and economic instability.

While our international sales are typically denominated in U.S. dollars, fluctuations in currency exchange rates could cause our products to become relatively more expensive to customers in a particular country, leading to a reduction in sales or profitability in that country. We do not currently engage in any foreign currency hedging transactions. Gains and losses on the conversion to U.S. dollars of accounts receivable, accounts payable and other monetary assets and liabilities arising from international operations may contribute to fluctuations in operating results. Furthermore, payment cycles for international customers are typically longer than those for customers in the United States. Unpredictable sales cycles could cause us to fail to meet or exceed the expectations of security analysts and investors for any given period. Further, we cannot assure you that foreign markets will continue to develop.

In recent periods, certain Asian and Latin American currencies have devalued significantly in relation to the U.S. dollar. We believe that financial developments in Asia and Latin America were a major factor contributing to lower international net sales in fiscal 1998 as compared to fiscal 1997. In addition, the uncertain financial situation in Asia has placed financial pressure on some of our distributors. In response, we increased accounts receivable reserves in the first quarter of 1998. We are continuing to evaluate the effect on our business of recent financial developments in Asia and Latin America. Given the current political and economic uncertainties in China and throughout Asia, we cannot assure you that shipment of orders to Asia, including China, will be made as scheduled, or at all. We cannot assure you that our sales and collection cycles in Asia and Latin America will not continue to be harmed by the uncertain financial climate. See "Management's Discussion and Analysis of Financial Condition and Results of Operations."

WE MUST BE ABLE TO MANAGE EXPENSES AND INVENTORY RISKS ASSOCIATED WITH MEETING THE DEMAND OF OUR CUSTOMERS.

From time to time, we receive indications from our customers as to their future plans and requirements to ensure that we will be prepared to meet their demand for our products. In the past, however, we have received such indications but, on occasion, we did not ultimately receive purchase orders for our products. We must be able to effectively manage expenses and inventory risks associated with meeting potential demand for our products. In addition, if we fail to meet customers' supply expectations, we may lose business from such customers. If we expend resources and purchase materials to manufacture products and such products are not purchased, our business and operating results could suffer.

THE MARKET IN WHICH WE OPERATE IS INTENSELY COMPETITIVE AND MANY OF OUR COMPETITORS ARE LARGER AND MORE ESTABLISHED.

The market for cable television transmission equipment is extremely competitive and has been characterized by rapid technological change. Harmonic's current competitors include significantly larger corporations such as ADC Telecommunications, ANTEC (a company owned in part by TCI), General Instrument, Philips and Scientific-Atlanta. Additional competition could come from new entrants in the broadband communications equipment market, such as Lucent Technologies. Most of these companies are substantially larger and have greater financial, technical, marketing and other resources than we do. Many of these large organizations are in a better position to withstand any significant reduction in capital spending by cable television operators. In addition, many of our competitors have more long stand-

ing and established relationships with domestic and foreign cable television operators than we do. We cannot assure you that we will be able to compete successfully in the future or that competition will not harm our business.

If any of our competitors' products or technologies were to become the industry standard or if any of our smaller competitors were to enter into or expand relationships with larger companies through mergers, acquisitions or otherwise, our business could be seriously harmed. Further, our competitors may



bundle their products or incorporate functionality into existing products in a manner that discourages users from purchasing our products. See "Business -- Competition."

BROADBAND COMMUNICATIONS MARKETS ARE RELATIVELY IMMATURE AND CHARACTERIZED BY RAPID TECHNOLOGICAL CHANGE.

Broadband communications markets are relatively immature, making it difficult to accurately predict the markets' future growth rate, size and technological direction. In view of the evolving nature of these markets, it is possible that cable television operators, telephone companies or other suppliers of broadband wireless and satellite services will decide to adopt alternative architectures or technologies that are incompatible with our current or future products. If we are unable to design, develop, manufacture and sell products that incorporate or are compatible with these new architectures or technologies, our business would suffer.

WE NEED TO DEVELOP AND INTRODUCE NEW AND ENHANCED PRODUCTS IN A TIMELY MANNER TO REMAIN COMPETITIVE.

Broadband communications markets are characterized by continuing technological advancement, changes in customer requirements and evolving industry standards. To compete successfully, we must design, develop, manufacture and sell new or enhanced products that provide increasingly higher levels of performance and reliability. However, we may not be able to successfully develop or introduce these products. Moreover, these products may not achieve broad commercial acceptance and may have lower gross margins than our other products.

In addition, to successfully develop and market our planned products for digital applications, we may be required to enter into technology development or licensing agreements with third parties. We cannot assure you that we will be able to enter into any necessary technology development or licensing agreement on terms acceptable to us, or at all. The failure to enter into technology development or licensing agreements when necessary could limit our ability to develop and market new products and, accordingly, could materially and adversely affect our business and operating results.

WE NEED TO EFFECTIVELY MANAGE OUR GROWTH.

The growth in Harmonic's business has placed, and is expected to continue to place, a significant strain on Harmonic's personnel, management and other resources. Harmonic's ability to manage any future growth effectively will require us to attract, train, motivate and manage new employees successfully, to integrate new employees into our overall operations, to retain key employees and to continue to improve our operational, financial and management systems. If we fail to manage our future growth effectively, our business could suffer.

COMPETITION FOR QUALIFIED PERSONNEL IS INTENSE, AND WE MAY NOT BE SUCCESSFUL IN ATTRACTING AND RETAINING PERSONNEL.

Our future success will depend, to a significant extent, on the ability of our management to operate effectively, both individually and as a group. We are dependent on our ability to retain and motivate high caliber personnel, in addition to attracting new personnel. Competition for qualified technical and other personnel is intense, particularly in the San Francisco Bay Area and Israel, and we may not be successful in attracting and retaining such personnel.

Competitors and others have in the past and may in the future attempt to recruit our employees. While our employees are required to

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sign standard agreements concerning confidentiality and ownership of inventions, we generally do not have employment contracts or noncompetition agreements with any of our personnel. The loss of the services of any of our key personnel, the inability to attract or retain qualified personnel in the future or delays in hiring required personnel, particularly engineers and other technical personnel, could negatively affect our business.

OUR ACQUISITION OF NMC HAS CREATED NUMEROUS RISKS AND CHALLENGES FOR US.

The acquisition of New Media Communications, Ltd. or NMC has placed, and is

expected to continue to place, a significant strain on our personnel, management and other resources. The acquisition of NMC in January 1998 has allowed us to develop and expand our product offerings to include broadband high-speed data delivery hardware and software and increased the scope of our international operations in Israel. The acquisition of NMC continues to impose challenges, including:

- the dependence on the evolution and growth of the market for wireless and satellite broadband services;
- difficulties in the assimilation of operations, research and development efforts, products, personnel and cultures of Harmonic and NMC;
- our ability to successfully develop, manufacture and gain market acceptance of the products of NMC; and
- the amortization of goodwill resulting from the acquisition of NMC.

We cannot assure you that we will be able to successfully address these challenges, and our failure to do so could materially and adversely affect our business, financial condition and operating results.

WE MAY BE SUBJECT TO RISKS ASSOCIATED WITH ACQUISITIONS.

We have made and may make investments in complementary companies, products or technologies. If we make acquisitions, we could have difficulty assimilating or retaining the acquired companies' personnel and operations or integrating the acquired technology or products into ours. These difficulties could disrupt our ongoing business, distract our management and employees and increase our expenses. Moreover, our profitability may suffer because of acquisition-related costs or amortization costs for acquired goodwill and other intangible assets. Furthermore, we may have to incur debt or issue equity securities to pay for any future acquisitions, the issuance of which could be dilutive to our existing shareholders. If we are unable to successfully address any of these risks, our business, financial condition and operating results could be harmed.

IF SALES FORECASTED FOR A PARTICULAR PERIOD ARE NOT REALIZED IN THAT PERIOD DUE TO THE UNPREDICTABLE SALES CYCLES OF OUR PRODUCTS, OUR OPERATING RESULTS FOR THAT PERIOD WILL BE HARMED.

The sales cycles of many of our products, particularly our newer products and products sold internationally, are typically unpredictable and usually involve:

- a significant technical evaluation;
- a commitment of capital and other resources by cable and other network operators;
- delays associated with cable and other network operators' internal procedures to approve large capital expenditures;
- time required to engineer the deployment of new technologies or services within broadband networks; and
- testing and acceptance of new technologies that affect key operations.

For these and other reasons, our sales cycles generally last three to six months, but can last up to 12 months. If orders forecasted for a specific customer for a particular quarter do not occur in that quarter, our operating results for that quarter could be substantially lower than anticipated.

OUR FAILURE TO ADEQUATELY PROTECT OUR PROPRIETARY RIGHTS MAY ADVERSELY AFFECT US.

We currently hold 12 issued United States patents and 9 issued foreign patents, and have a number of patent applications pending. Although we attempt to protect our intellectual property rights through patents, trademarks, copyrights, maintaining certain technology as trade secrets and other measures, we cannot assure you that any patent, trademark, copyright or other intellectual property right owned by us will not be invalidated, circumvented or challenged,

that such intellectual property right will provide competitive advantages to us or that any of our pending or future patent applications will be issued with the scope of the claims sought by us, if at all. We cannot assure you that others will not develop technologies that are similar or superior to our technology, duplicate our technology or design around the patents that we own. In addition, effective patent, copyright and trade secret protection may be unavailable or limited in certain foreign countries in which we do business or may do business in the future.

We believe that the future success of our business will depend on our ability to translate the technological expertise and innovation of our personnel into new and enhanced products. We generally enter into confidentiality or license agreements with our employees, consultants, vendors and customers as needed, and generally limit access to and distribution of our proprietary information. Nevertheless, we cannot assure you that the steps taken by us will prevent misappropriation of our technology. In addition, we have taken in the past, and may take in the future, legal action to enforce our patents and other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity. Such litigation could result in substantial costs and diversion of resources and could harm our business and operating results.

In order to successfully develop and market our planned products for digital applications, we may be required to enter into technology development or licensing agreements with third parties. Although many companies are often willing to enter into such technology development or licensing agreements, we cannot assure you that such agreements will be negotiated on terms acceptable to us, or at all. The failure to enter into technology development or licensing agreements, when necessary, could limit our ability to develop and market new products and could cause our business to suffer.

As is common in our industry, we have from time to time received notification from other companies of intellectual property rights held by those companies upon which our products may infringe. Any claim or litigation, with or without merit, could be costly, time consuming and could result in a diversion of management's attention, which could harm our business. If we were found to be infringing on the intellectual property rights of any third party, we could be subject to liabilities for such infringement, which could be material, and could be required to seek licenses from other companies or to refrain from using, manufacturing or selling certain products or using certain processes. Although holders of patents and other intellectual property rights often offer licenses to their patent or other intellectual property rights, we cannot assure you that licenses would be offered, that the terms of any offered license would be acceptable to us or that failure to obtain a license would not cause our operating results to suffer.

WE MAY NEED ADDITIONAL CAPITAL IN THE FUTURE AND MAY NOT BE ABLE TO SECURE ADEQUATE FUNDS IN TERMS ACCEPTABLE TO US.

We currently anticipate that our existing cash balances and available line of credit and cash flow expected to be generated from future operations will be sufficient to meet our liquidity needs for at least the next twelve months. However, we may need to raise additional funds if our estimates change or prove inaccurate or in order for us to respond to unforeseen technological or marketing hurdles or to take advantage of unanticipated opportunities.

In addition, we expect to review potential acquisitions that would complement our existing

product offerings or enhance our technical capabilities. While we have no current agreements or negotiations underway with respect to any potential acquisition, any future transaction of this nature could require potentially significant amounts of capital. Funds may not be available at the time or times needed, or available on terms acceptable to us. If adequate funds are not available, or are not available on acceptable terms, we may not be able to take advantage of market opportunities, to develop new products or to otherwise respond to competitive pressures.

WE PURCHASE SEVERAL KEY COMPONENTS, SUBASSEMBLIES AND MODULES USED IN THE MANUFACTURE OR INTEGRATION OF OUR PRODUCTS FROM SOLE OR LIMITED SOURCES, AND WE

ARE INCREASINGLY DEPENDENT ON CONTRACT MANUFACTURERS.

Many components, subassemblies and modules necessary for the manufacture or integration of our products are obtained from a sole supplier or a limited group of suppliers. Our reliance on sole or limited suppliers, particularly foreign suppliers, and our increasing reliance on subcontractors involves several risks, including a potential inability to obtain an adequate supply of required components, subassemblies or modules and reduced control over pricing, quality and timely delivery of components, subassemblies or modules. Certain key elements of our digital headend products are provided by a sole foreign supplier. We do not generally maintain long-term agreements with any of our suppliers or subcontractors. An inability to obtain adequate deliveries or any other circumstance that would require us to seek alternative sources of supply could affect our ability to ship our products on a timely basis, which could damage relationships with current and prospective customers and harm our business. We attempt to limit this risk by maintaining safety stocks of these components, subassemblies and modules. As a result of this investment in inventories, we may be subject to an increasing risk of inventory obsolescence in the future, which could harm our business. See "Business -- Manufacturing and Suppliers."

WE FACE RISKS ASSOCIATED WITH HAVING IMPORTANT FACILITIES AND RESOURCES LOCATED IN ISRAEL.

Harmonic maintains two facilities in the State of Israel with a total of approximately 60 employees. The personnel at these facilities represent a significant portion of our research and development operations. Accordingly, we are directly influenced by the political, economic and military conditions affecting Israel, and any major hostilities involving Israel or the interruption or curtailment of trade between Israel and its present trading partners could significantly harm our business.

In addition, most of our employees in Israel are currently obligated to perform annual reserve duty in the Israel Defense Forces and are subject to being called for active military duty at any time. We cannot predict the effect of these obligations on Harmonic in the future.

OUR BUSINESS COULD BE ADVERSELY IMPACTED BY YEAR 2000 COMPLIANCE ISSUES.

During the next year, many software programs may not recognize calendar dates beginning in the year 2000. This problem could force computers or machines which utilize date dependent software to either shut down or provide incorrect information. To address this problem, we have examined our computer and information systems, contacted our software and hardware providers, and, where necessary, made upgrades to our systems.

Based upon the assessments to date, all hardware products currently under development or released, and all software products currently under development are Y2K compliant. Certain software products currently installed at customer sites are not Y2K compliant and Harmonic is working with its customers to provide migration paths for each product. Undetected errors or defects may remain. Disruptions to our business or unexpected costs may arise because of undetected errors or defects in the technology used in our products, manufacturing processes or internal information systems, which are comprised predominantly of third party software and hardware. If we, or any of our key

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suppliers or customers, fail to mitigate internal and external Year 2000 risks, we may temporarily be unable to process transactions, manufacture products, send invoices or engage in similar normal business activities or we may experience a decline in sales, which could materially and adversely affect our business, financial condition and results of operations. See "Management's Discussion and Analysis of Financial Condition and Results of Operations -- Year 2000 Readiness Disclosure."

OUR STOCK PRICE MAY BE VOLATILE.

The market price of our common stock has fluctuated in the past and is likely to fluctuate in the future. In addition, the securities markets have experienced significant price and volume fluctuations and the market prices of the securities of technology companies have been especially volatile. Investors may be unable to resell their shares of our common stock at or above the

offering price. In the past, companies that have experienced volatility in the market price of their stock have been the object of securities class action litigation. If we were the object of securities class action litigation, it could result in substantial costs and a diversion of management's attention and resources. See "Price Range of Common Stock."

OUR CERTIFICATE OF INCORPORATION AND BYLAWS AND DELAWARE LAW CONTAIN PROVISIONS THAT COULD DISCOURAGE A TAKEOVER.

Provisions of our Amended and Restated Certificate of Incorporation, Bylaws, and Delaware law could make it more difficult for a third party to acquire us, even if doing so would be beneficial to our stockholders. See "Description of Capital Stock."

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#### SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

We have made forward-looking statements in this Prospectus (and in the documents that are incorporated by reference) that are subject to risks and uncertainties. Forward-looking statements include information concerning possible or assumed future results of operations of Harmonic. Also, when we use such words as "believes," "expects," "anticipates" or similar expressions, we are making forward-looking statements. You should note that an investment in securities of Harmonic involves certain risks and uncertainties that could affect the future financial results of Harmonic. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including those set forth in "Risk Factors" and elsewhere in this Prospectus.

We believe it is important to communicate our expectations to our investors. However, there may be events in the future that we are not able to predict accurately or over which we have no control. The risk factors listed above, as well as any cautionary language in this prospectus, provide examples of risks, uncertainties and events that may cause our actual results to differ materially from the expectations we describe in our forward-looking statements. Before you invest in our common stock, you should be aware that the occurrence of the events described in these risk factors and elsewhere in this prospectus could materially and adversely affect our business, operating results and financial condition.

#### USE OF PROCEEDS

The net proceeds to Harmonic from the sale of the 2,000,000 shares of common stock offered by Harmonic are estimated to be \$47.0 million at an assumed public offering price of \$25.125 per share, after deducting the estimated underwriting discount and estimated offering expenses payable by Harmonic (\$57.0 million if the over-allotment option is exercised in full.)

Harmonic expects to use the net proceeds from this offering for general corporate purposes, including working capital and capital expenditures, and repayment of \$577,000 of indebtedness under an equipment term loan which bears interest at the bank's prime rate plus 0.5% (prime rate plus 1.0% under the term loan sublimit). In addition, Harmonic may use a portion of the net proceeds to acquire complementary products, technologies or businesses. However, Harmonic currently has no commitments or agreements and is not involved in any negotiations with respect to any acquisition transactions. Pending use of the net proceeds of this offering, Harmonic intends to invest the net proceeds in interest-bearing, investment-grade securities. Although Harmonic will not receive any proceeds from the sale of the shares being sold by the selling stockholders, Harmonic will receive \$3,996,000 in connection with the exercise of the Scientific-Atlanta warrant. See "Selling Stockholders."

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#### PRICE RANGE OF COMMON STOCK

Harmonic common stock has been quoted on the Nasdaq National Market under the symbol HLIT since Harmonic's initial public offering on May 22, 1995. Prior to such time, there was no public market for the common stock of Harmonic. The following table sets forth, for the periods indicated, the high and low sale

prices per share of the common stock as reported on the Nasdaq National Market.

	HIGH -----	LOW -----
Fiscal Year 1997		
First Quarter.....	\$25.25	\$12.75
Second Quarter.....	\$21.00	\$11.25
Third Quarter.....	\$21.25	\$14.88
Fourth Quarter.....	\$16.50	\$10.25
Fiscal Year 1998		
First Quarter.....	\$16.25	\$10.63
Second Quarter.....	\$19.00	\$12.13
Third Quarter.....	\$18.00	\$ 7.63
Fourth Quarter.....	\$18.88	\$ 8.75
Fiscal Year 1999		
First Quarter (through March 24, 1999).....	\$28.88	\$14.88

On March 24, 1999, the reported last sale price of the common stock on the Nasdaq National Market was \$25.125 per share. As of March 1, 1999, there were approximately 111 stockholders of record of Harmonic's common stock.

#### DIVIDEND POLICY

Harmonic has never declared or paid any dividends on its capital stock. Harmonic currently expects to retain future earnings, if any, for the use in the operation and expansion of its business and does not anticipate paying any cash dividends in the foreseeable future. The covenants made by Harmonic under its existing line of credit prohibit the payment of dividends.

#### CORPORATE INFORMATION

Harmonic was incorporated in California in June 1988 and was reincorporated into Delaware in May 1995. On March 22, 1999, we changed our corporate name from Harmonic Lightwaves, Inc. to Harmonic Inc. References in this prospectus to "Harmonic," "we," "our," and "us" refer to Harmonic Inc., a Delaware corporation. Harmonic's principal executive offices are located at 549 Baltic Way, Sunnyvale, California 94089 and Harmonic's telephone number is (408) 542-2500.

PWRLink and YAGLink are registered trademarks of Harmonic. CyberStream, Enterprisel, eXchange, MAXLink, METROLink, NETWatch, PWRBlazer and TRANsend are trademarks of Harmonic. Each trademark, trade name or service mark of any other company appearing in this prospectus belongs to its holder.

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#### CAPITALIZATION

The following table sets forth the capitalization of Harmonic as of December 31, 1998 (a) on an actual basis and (b) on an as adjusted basis to give effect to the receipt by Harmonic of the estimated net proceeds from the sale of 2,000,000 shares of common stock offered by Harmonic hereby at an assumed public offering price of \$25.125 per share after deducting the estimated underwriting discount and estimated offering expenses payable by Harmonic and the repayment of \$577,000 of indebtedness:

	DECEMBER 31, 1998	
	----- ACTUAL	AS ADJUSTED -----
	(IN THOUSANDS)	
Long-term debt, less current portion.....	\$ 400	\$ --
Stockholders' equity:		
Preferred Stock: \$0.001 par value; authorized: 5,000,000; no shares issued and outstanding.....	--	--
Common Stock: \$0.001 par value; authorized: 50,000,000;		

issued and outstanding: 11,725,844, actual; 13,743,582, as adjusted(1).....	12	14
Capital in excess of par value.....	70,924	117,933
Accumulated deficit.....	(27,472)	(27,472)
Accumulated other comprehensive income.....	10	10
	-----	-----
Total stockholders' equity.....	43,474	90,485
	-----	-----
Total capitalization.....	\$ 43,874	\$ 90,485
	=====	=====

(1) Excludes 2,584,779 shares of common stock reserved for issuance under Harmonic's stock option and stock purchase plans, of which 2,123,148 shares were subject to outstanding options as of December 31, 1998. Includes 17,738 shares of common stock issued upon the net exercise of a warrant subsequent to December 31, 1998. Excludes 720,000 shares issuable upon the exercise of an outstanding warrant held by Scientific-Atlanta with an exercise price of \$5.55 per share, which shares are offered hereby. The as adjusted number excludes the proceeds payable to Harmonic upon exercise of the Scientific-Atlanta warrant. See "Management -- Incentive Stock Plans," "Selling Stockholders," "Description of Capital Stock" and Notes 8, 9 and 14 of Notes to Consolidated Financial Statements.

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#### SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data set forth below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the Consolidated Financial Statements and the Notes thereto of Harmonic included elsewhere in this prospectus or incorporated herein by reference. The consolidated statement of operations data and consolidated balance sheet data set forth below for the fiscal years ended December 31, 1994, 1995, 1996, 1997 and 1998 have been derived from the audited financial statements of Harmonic included elsewhere in this prospectus or incorporated herein by reference, which have been audited by PricewaterhouseCoopers LLP, Independent Accountants. The historical results are not necessarily indicative of results to be expected for any future period. See "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	YEAR ENDED DECEMBER 31,				
	1994	1995	1996	1997	1998
	-----	-----	-----	-----	-----
	(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)				
CONSOLIDATED STATEMENT OF OPERATIONS					
DATA:					
Net sales.....	\$18,224	\$39,180	\$60,894	\$74,442	\$ 83,857
Cost of sales.....	11,757	21,329	33,163	39,837	53,302
	-----	-----	-----	-----	-----
Gross profit.....	6,467	17,851	27,731	34,605	30,555
Operating expenses:					
Research and development.....	3,209	6,144	9,237	11,676	13,524
Sales and marketing.....	4,108	5,750	9,827	13,599	18,162
General and administrative.....	1,339	2,196	3,463	4,824	6,812
Acquired in-process technology.....	--	--	--	--	14,000
	-----	-----	-----	-----	-----
Total operating expenses.....	8,656	14,090	22,527	30,099	52,498
Income (loss) from operations(1).....	(2,189)	3,761	5,204	4,506	(21,943)
Interest and other income, net.....	(179)	577	1,025	682	490
	-----	-----	-----	-----	-----
Income (loss) before income taxes(1)....	(2,368)	4,338	6,229	5,188	(21,453)
Provision for income taxes.....	--	217	311	259	--
	-----	-----	-----	-----	-----
Net income (loss) (1).....	\$(2,368)	\$ 4,121	\$ 5,918	\$ 4,929	\$(21,453)
	=====	=====	=====	=====	=====
Net income (loss) per share(2) (3)					
Basic.....	\$ --	\$ 0.71	\$ 0.59	\$ 0.48	\$ (1.85)
Diluted.....	--	0.40	0.52	0.43	(1.85)

Weighted average shares(3)					
Basic.....	--	5,797	10,106	10,345	11,622
Diluted.....	--	10,382	11,474	11,523	11,622

DECEMBER 31,

	1994	1995	1996	1997	1998
CONSOLIDATED BALANCE SHEET DATA:					
Cash and cash equivalents.....	\$ 1,743	\$22,126	\$16,410	\$13,670	\$ 9,178
Total assets.....	14,578	41,817	54,633	58,887	62,424
Current portion of long-term debt.....	643	--	--	--	177
Long-term debt, less current portion....	837	--	--	--	400
Stockholders' equity (deficit).....	(20,717)	37,009	43,641	49,931	43,474

- (1) The 1998 loss from operations and net loss include a one-time charge of \$14.0 million for acquired in-process technology. See Note 2 of Notes to Consolidated Financial Statements.
- (2) Net loss per share data for periods prior to the commencement of public trading of the Company's common stock on May 22, 1995 have not been presented as such presentation is not meaningful.
- (3) See Note 5 of Notes to Consolidated Financial Statements for a discussion of the shares used to compute net income (loss) per share.

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION  
AND RESULTS OF OPERATIONS

OVERVIEW

Harmonic designs, manufactures and markets digital and fiber optic systems for delivering video, voice and data services over cable, satellite and wireless networks. Almost all of our sales have been derived directly or indirectly from sales of fiber optic transmission systems to cable television operators. With the introduction of our TRANsend digital headend products in 1997 and the subsequent purchase of New Media Communication, Ltd., we have broadened our product offering to enable delivery of digital video, voice and data over satellite and wireless networks in addition to cable systems.

To date, a substantial majority of Harmonic's net sales have been to relatively few customers, and Harmonic expects this customer concentration to continue in the foreseeable future. In 1998, sales to TCI accounted for 17% of Harmonic's net sales and sales to a Chinese distributor accounted for 11% of Harmonic's net sales. In 1997, sales to Capella, Harmonic's Canadian distributor, accounted for 17% of Harmonic's net sales. In 1996, sales to Tratec, Harmonic's former U.K. distributor, Capella and ANTEC accounted for 15%, 15% and 13%, respectively, of Harmonic's net sales.

Sales to customers outside of the United States in 1998, 1997 and 1996 represented 43%, 59% and 57% of net sales, respectively. International sales are made primarily to distributors, which are generally responsible for importing the products and providing installation and technical support and service to customers within their territory. We expect international sales to continue to account for a substantial portion of our net sales for the foreseeable future.

Harmonic's net sales in the second half of 1997 and the first quarter of 1998 were negatively affected by a slow-down in spending by cable television operators in the U.S. and in foreign markets. The factors contributing to this slow-down in capital spending included:

- consolidation and system exchanges by our domestic cable customers, which generally have had the initial effect of delaying certain system upgrades;
- uncertainty related to development of digital video and cable modem



industry standards;

- delays associated with the evaluation of new services and system architectures by many cable television operators;
- emphasis on marketing and customer service strategies by some international cable television operators instead of construction of networks; and
- general economic conditions in international markets.

While Harmonic's net sales increased in the last three quarters of 1998 from the level achieved in the first quarter of 1998 due to increased spending in the U.S. cable television industry, spending by international cable television operators generally remained weak. Harmonic cannot predict when international cable television spending will increase and whether U.S. cable television spending will continue to grow. In addition, cable television capital spending can be subject to the effects of seasonality, with fewer construction and upgrade projects typically occurring in winter months and otherwise being affected by inclement weather.

In 1998, 1997 and 1996, sales of optical transmitters accounted for approximately 54%, 63%, and 71%, respectively, of net sales and sales of optical node receivers, return path and network management products accounted for approximately 35%, 37%, and 29%, respectively, of net sales. In

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1998, TRANsend and CyberStream digital products accounted for 11% of net sales. There were no significant sales of digital products in 1997 or 1996.

Harmonic generally recognizes revenue upon shipment of product. Harmonic does not provide for rights of return to end users or distributors. A provision for the estimated cost of warranty is recorded at the time revenue is recognized. To date, gross margins on sales of optical transmitter products have been higher than sales of receiver and return path products. In addition, sales made to customers outside of the United States have generally carried higher gross margins. In 1999, we expect our gross margins to be below 1997 levels principally due to anticipated softness in certain international markets, continued pricing pressure, our expected mix of products sold and manufacturing start-up costs associated with recent product introductions.

Harmonic often recognizes a substantial portion of its revenues in the last month of the quarter. Harmonic establishes its expenditure levels for product development and other operating expenses based on projected sales levels, and expenses are relatively fixed in the short term. Accordingly, variations in timing of sales can cause significant fluctuations in operating results. In addition, because a significant portion of Harmonic's business is derived from orders placed by a limited number of large customers, the timing of such orders can also cause significant fluctuations in our operating results. Harmonic's expenses for any given quarter are typically based on expected levels of future sales and if sales are below expectations in any given quarter, the adverse impact of the shortfall on operating results may be magnified by Harmonic's inability to adjust spending to compensate for the shortfall. As a result of these and other factors, Harmonic's operating results in one or more future periods may fail to meet or exceed the expectations of securities analysts or investors. In that event, the trading price of our common stock would likely decline. See "Risk Factors -- Our operating results are likely to fluctuate significantly and may fail to meet or exceed the expectations of securities analysts or investors, causing our stock price to decline."

#### RESULTS OF OPERATIONS

Harmonic's historical consolidated statements of operations data for each of the three years ended December 31, 1996, 1997 and 1998 as a percentage of net sales, are as follows:

FISCAL YEAR ENDED  
DECEMBER 31,  
-----

	1996	1997	1998
	----	----	----
Net sales.....	100%	100%	100%
Cost of sales.....	54	54	64
	---	---	---
Gross profit.....	46	46	36
Operating expenses			
Research and development.....	15	16	16
Sales and marketing.....	16	18	21
General and administrative.....	6	6	8
Acquired in-process technology.....	--	--	17
	---	---	---
Total operating expenses.....	37	40	62
	---	---	---
Income (loss) from operations.....	9	6	(26)
Interest and other income, net.....	1	1	--
	---	---	---
Income (loss) before income taxes.....	10	7	(26)
Provision for income taxes.....	--	--	--
	===	===	===
Net income (loss).....	10%	7%	(26)%
	---	---	---

#### Net Sales

Harmonic's net sales increased by 13% to \$83.9 million in 1998 as compared to \$74.4 million in 1997. This growth in net sales was primarily attributable to the sale of new products, including TRANsend digital headend products, METROLink DWDM systems and PWRBlazer Scaleable Nodes, which began volume shipment during the middle of 1998, as well as to an increase in spending by our domestic customers in the second half of 1998. During 1998 domestic sales increased by 55%, principally due to increased shipments to TCI, while international sales decreased by 17% due to continued weakness in many international markets. The increase in net sales was also due to higher unit sales of existing products partially offset by lower selling prices for certain products. Net sales increased by 22% to \$74.4 million in 1997 from \$60.9 million in 1996. This growth in net sales in 1997 was primarily attributable to higher unit sales of Harmonic's receiver and return path products and sales of the 1550nm MAXLink transmission system, which began shipment during the second quarter of 1996. These factors were partially offset by lower unit sales of YAGLink transmitters due in part to the increasing acceptance of 1550nm transmitters among cable operators for broadcast transmission.

#### Gross Profit

Gross profit decreased to \$30.6 million (36% of net sales) in 1998 from \$34.6 million (46% of net sales) in 1997. The decreases in gross profit and gross margins were principally due to a lower percentage of international sales resulting from reduced demand, a less favorable product mix which included a lower percentage of transmitters, and pricing pressure for certain products due to increased competition. In addition, gross profit and gross margins were negatively impacted by start-up costs associated with new product introductions and an increase in inventory reserves for existing products following the introduction of new products. Harmonic expects gross margins to continue to be below 1997 levels in 1999 due to anticipated softness in certain international markets, expected changes in product mix, pricing pressure for certain products and manufacturing start-up costs associated with recent product introductions. Gross profit increased to \$34.6 million (46% of net sales) in 1997 from \$27.7 million (46% of net sales) in 1996. The increase in gross profit was principally due to higher unit sales volume and lower manufacturing costs, particularly for Harmonic's MAXLink products, which commenced shipment during the second quarter of 1996, and improved margins on return path products resulting from product design changes. These factors were partially offset by a less favorable product mix which included lower sales of transmitters as a percentage of net sales, and lower selling prices for certain products.

#### Research and Development

Research and development expenses increased to \$13.5 million (16% of net

sales) in 1998 from \$11.7 million (16% of net sales) in 1997. The increase in research and development expenses in 1998 was primarily due to increased headcount, particularly at Harmonic's subsidiary in Caesarea, Israel which is continuing to develop Harmonic's TRANSend digital headend products, and to the inclusion of NMC's research and development expenses starting in January 1998. Research and development expenses increased to \$11.7 million (16% of net sales) in 1997 from \$9.2 million (15% of net sales) in 1996. The increase in research and development expenses in 1997 both in absolute dollars and as a percentage of net sales was principally attributable to increased headcount and higher prototype material costs in connection with the node and digital development programs. Research and development expenses for 1998, 1997 and 1996 are net of grants of approximately \$346,000, \$120,000 and \$140,000, respectively. Harmonic anticipates that research and development expenses will continue to increase in absolute dollars, although they may vary as a percentage of net sales.

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#### Sales and Marketing

Sales and marketing expenses increased to \$18.2 million (21% of net sales) in 1998 from \$13.6 million (18% of net sales) in 1997. The increase in sales and marketing expenses in 1998 both in absolute dollars and as a percentage of net sales was primarily due to higher headcount and costs associated with expansion and reorganization of the direct sales force, technical support and marketing organizations, particularly to support the introduction of our new products. This increase was due to expenses incurred in connection with the recruiting and staffing for new international sales and technical support centers. In addition, higher promotional expenses and the inclusion of NMC's sales and marketing expenses starting in January 1998 contributed to the increase. Sales and marketing expenses increased to \$13.6 million (18% of net sales) in 1997 from \$9.8 million (16% of net sales) in 1996. The increase in sales and marketing expenses in 1997 was primarily due to higher headcount associated with expansion of the direct sales force, customer service and technical support organizations, expenses associated with establishing international sales offices, and higher promotional expenses. Harmonic expects that sales and marketing expenses will continue to increase in absolute dollars, although they may vary as a percentage of net sales.

#### General and Administrative

General and administrative expenses increased to \$6.8 million (8% of net sales) in 1998 from \$4.8 million (6% of net sales) in 1997. The increase in general and administrative expenses in 1998 was primarily due to the inclusion of NMC's expenses starting in January 1998, as well as costs of supporting Harmonic's growth in overall headcount, and the establishment of international sales and support offices. General and administrative expenses increased to \$4.8 million (6% of net sales) in 1997 from \$3.5 million (6% of net sales) in 1996. The increase in absolute expenses in 1997 was principally attributable to costs of supporting Harmonic's growth in overall headcount and operations and providing for a higher accounts receivable reserve. Harmonic expects to incur higher levels of general and administrative expenses in the future, although such expenses may vary as a percentage of net sales.

#### Acquired In-Process Technology

On January 5, 1998, Harmonic acquired NMC, a privately-held Israeli development stage company with 15 employees, for \$17.6 million in a stock-for-stock transaction. Harmonic also assumed all outstanding stock options of NMC. The transaction was accounted for as a purchase and, accordingly, the fair value of the assets and liabilities were recorded based upon their fair value at the time of the transaction. Harmonic determined, with the aid of an independent appraisal, that technological feasibility of the acquired in-process technology had not yet been established. Harmonic also believed that NMC's existing technology would generate no further revenue on account of its obsolescence. Accordingly, no value was assigned to the existing technology. In accordance with generally accepted accounting principles, Harmonic wrote off acquired in-process research and development expenses of \$14.0 million as a one-time charge to operations in the first quarter of 1998.

Historically, NMC had developed receiver cards for data transmission over cable, wireless and satellite networks. These analog products operated at transmission speeds of 5.5Mbps and had been sold only to a limited number of customers. NMC concluded during 1997 that these analog products were rapidly

becoming obsolete and discontinued research and development efforts. Based on customer feedback and expected market trends, NMC commenced technology development of the CyberStream System, a digital system designed to provide substantially increased transmission speeds of 48Mbps to 52Mbps and to incorporate differentiated service capabilities and sophisticated network management.

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At the time of the NMC acquisition, NMC had commenced development of the CyberStream system, which was comprised of a data gateway at the satellite uplink or cable headend, network management and control features at the headend, and a receiver card for installation in a personal computer or a local area network router device. Just prior to the acquisition, NMC had initiated production of a limited number of prototype receiver cards in order to participate in pilot trials with two prospective customers. Shipment of the prototype cards commenced at the end of 1997.

Harmonic determined that since these products were intended for deployment in networks with large numbers of subscribers, NMC would have to engage in ongoing trials over an extended period to determine the products' technological feasibility. As part of these trials, NMC also shipped initial versions of operating software, but was several months away from completion of critical elements of the CyberStream system, such as quality of service, simple network management protocol and porting of the software to the Windows 98 and NT platforms. Subsequent to the acquisition, Harmonic expended \$1.9 million in 1998 in research and development costs to accelerate development and to incorporate changes resulting from field trial evaluations.

To estimate the value of NMC's existing and in-process technology, the total income forecasted was allocated to existing, in-process and future technology based on the products' scheduled release dates and expected lives. The forecasts assumed timely release of the products as anticipated by Harmonic and that NMC would utilize Harmonic distribution channels. Estimated revenues for the purchased in-process products were assumed to commence by the middle of fiscal year 1998 and increase through fiscal year 2002, at which time they were assumed to decrease through fiscal year 2007, as newer products would be released.

Rapid change and improvements in technology characterize the high-speed data delivery market. Harmonic's future success will depend on its ability to achieve scientific and technological advances and to translate such advances into commercially competitive products on a timely basis that keep pace with competing technological developments and address the increasingly sophisticated needs of our customers.

#### Interest and Other Income, Net

Interest and other income, net, consisting principally of interest income, was \$0.5 million in 1998, \$0.7 million in 1997 and \$1.0 million in 1996. The decreases in 1998 and 1997 were due primarily to lower interest income on lower average cash and cash equivalents balances.

#### Income Taxes

No provision for income taxes was recorded for 1998 due to the net loss incurred. The provision for income taxes for 1997 and 1996 was based on an estimated annual tax rate of 5% resulting from federal and state alternative minimum taxes and utilization of net operating loss carryforwards. Harmonic had available federal net operating loss carryforwards of approximately \$2.0 million at December 31, 1998. Under current tax law, Harmonic's utilization of its net operating loss carryforwards and tax credits may be limited in certain circumstances resulting from a change in ownership. In 1999, Harmonic expects to have an effective annual tax rate substantially lower than statutory rates, approximating 20% to 25%, due to the utilization of net operating loss carryforwards and tax credit carryforwards. Beyond 1999, Harmonic expects to have an effective annual tax rate that approximates statutory rates.

#### Quarterly Operating Results

The following table presents Harmonic's historical unaudited quarterly consolidated results of operations for our most recent four fiscal quarters. This data is derived from Harmonic's annual and quarterly consolidated financial

statements which are incorporated into this prospectus by reference.

In the opinion of management, such quarterly financial information has been prepared on the same basis as Harmonic's annual financial statements and includes all adjustments, consisting only of normal recurring adjustments, necessary to present fairly the financial results set forth therein. Results of operations for any previous quarter are not necessarily indicative of results for any future period. The following discussion is qualified by the more detailed discussion of these quarterly results by management which are contained in Harmonic's quarterly filings for the respective periods.

	FISCAL 1998			
	QUARTER ENDED APRIL 3	QUARTER ENDED JULY 3	QUARTER ENDED OCTOBER 2	QUARTER ENDED DECEMBER 31
	(IN THOUSANDS)			
CONSOLIDATED STATEMENT OF OPERATIONS DATA:				
Net sales.....	\$ 16,204	\$18,174	\$22,382	\$27,097
Cost of sales.....	11,114	11,512	13,948	16,728
Gross profit.....	5,090	6,662	8,434	10,369
Operating expenses:				
Research and development.....	3,423	3,243	3,507	3,351
Sales and marketing.....	4,072	4,797	4,436	4,857
General and administrative.....	2,148	1,551	1,535	1,578
Acquired in-process technology.....	14,000	--	--	--
Total operating expenses.....	23,643	9,591	9,478	9,786
Income (loss) from operations.....	(18,553)	(2,929)	(1,044)	583
Interest and other income, net.....	188	44	213	45
Income (loss) before income taxes.....	(18,365)	(2,885)	(831)	628
Provision for income taxes.....	--	--	--	--
Net income (loss).....	\$ (18,365)	\$ (2,885)	\$ (831)	\$ 628
AS A PERCENTAGE OF NET SALES:				
Net sales.....	100%	100%	100%	100%
Cost of goods sold.....	69	63	62	62
Gross profit.....	31	37	38	38
Operating expenses:				
Research and development.....	21	18	16	12
Sales and marketing.....	25	26	20	18
General and administrative.....	13	9	7	6
Acquired in-process technology.....	86	--	--	--
Total operating expenses.....	145	53	43	36
Income (loss) from operations.....	(114)	(16)	(5)	2
Interest and other income, net.....	1	--	1	--
Income (loss) before income taxes.....	(113)	(16)	(4)	2
Provision for income taxes.....	--	--	--	--
Net income (loss).....	(113)%	(16)%	(4)%	2%

Harmonic's net sales increased in each consecutive quarter of 1998 due to the commencement of volume shipment of new products including TRANsend digital headend products, METROLink DWDM systems and PWRBlazer Scaleable Nodes during the second quarter of 1998. In addition, net sales were significantly higher during the second half of 1998 compared to the first half of 1998 due principally to significantly higher sales to TCI as well as increased demand and production

volumes for the new products. Gross margins were lower in the first quarter of 1998 due primarily to an increase in inventory reserves for certain existing products following the introduction of several new products and to lower sales volume and corresponding lower factory absorption of fixed costs. General and administrative expenses were higher in the first quarter of 1998 due principally to adjustments to accounts receivable reserve levels as a result of the financial situation in Asia, which has affected certain of Harmonic's distributors.

Harmonic's quarterly operating results have fluctuated significantly in the past and are likely to continue to fluctuate significantly in the future depending upon a variety of factors, many of which are beyond Harmonic's control. These fluctuations may be caused by such factors as:

- the level of capital spending of our customers, both in the U.S. and in foreign markets;
- changes in market demand;
- the timing and amount of customer orders;
- competitive market conditions;
- our unpredictable sales cycles;
- new product introductions by our competitors or by us;
- changes in domestic and international regulatory environments;
- market acceptance of new or existing products;
- the cost and availability of components, subassemblies and modules;
- the mix of our customer base and sales channels;
- the mix of our products sold;
- our development of custom products;
- the level of international sales; and
- economic conditions specific to the cable television industry and general economic conditions.

For a discussion of these and other factors that may affect Harmonic's business, financial condition and operating results, See "Risk Factors."

#### LIQUIDITY AND CAPITAL RESOURCES

Harmonic completed its initial public offering in May 1995, raising approximately \$24.2 million, net of offering costs. Prior to that, Harmonic satisfied its liquidity needs primarily from the net proceeds of private sales of preferred stock, and to a lesser extent, from capital equipment leases and bank borrowings.

Cash used in operations was \$2.0 million in 1998 compared to cash provided by operations of \$2.0 million in 1997 and \$0.3 million in 1996. The increase in cash used in operations in 1998 compared to 1997 was primarily due to the net loss and higher inventory levels, partially offset by improved customer collections and higher accounts payable and accrued liabilities. The increase in cash provided by operations in 1997 compared to 1996 was principally attributable to slower growth in receivables, inventory and prepaid expenses and other assets, partially offset by lower net income, accounts payable and accrued liabilities.

Net working capital was \$32.3 million at December 31, 1998, including \$9.2 million of cash and cash equivalents. During 1998, Harmonic had a bank line of credit and equipment term loan facilities which provided up to \$12.0 million and \$3.0 million in borrowings, respectively. There were no

outstanding borrowings under the bank line at December 31, 1998, although Harmonic had guaranteed certain borrowing facilities of its subsidiaries totaling \$0.9 million with letters of credit and had total letters of credit issued under the line of \$2.7 million, which expire at various dates throughout fiscal year 1999. As of December 31, 1998, borrowings of \$577,000 were outstanding under the term loan. These facilities were available until December 1998. During the fourth quarter of 1998, Harmonic agreed to the principal terms of an amended and restated bank line of credit facility, which was finalized in March 1999. The new facility provides for borrowings of up to \$10.0 million with a \$3.0 million equipment term loan sub-limit. This new line, which expires in March 2000, bears interest at the bank's prime rate plus 0.5% (prime rate plus 1.0% under the term loan sub-limit). The line is secured by substantially all of the assets of Harmonic.

Additions to property, plant and equipment were approximately \$4.4 million during 1998 compared to \$4.8 million in 1997 and \$6.7 million in 1996 respectively. While Harmonic currently has no material commitments, it expects to spend approximately \$5.0 million on capital expenditures in 1999, primarily for manufacturing and test equipment.

Harmonic believes that its existing liquidity sources, including its new bank line of credit facility, and anticipated funds from operations will satisfy its cash requirements for at least the next twelve months.

#### QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact the financial position, results of operations or cash flows of Harmonic due to adverse changes in market prices and rates. Harmonic is exposed to market risk because of changes in foreign currency exchange rates as measured against the U.S. Dollar and currencies of Harmonic's subsidiaries in Israel and in the United Kingdom. Harmonic has not engaged in hedging activities as of December 31, 1998 and does not expect to do so in the foreseeable future.

Harmonic has subsidiaries in Israel and the United Kingdom whose sales are generally denominated in U.S. dollars. While Harmonic does not anticipate that near-term changes in exchange rates will have a material impact on future operating results, fair values or cash flows, Harmonic cannot assure you that a sudden and significant change in the value of the Israeli Shekel or British Pound would not harm Harmonic's financial condition and results of operations.

#### YEAR 2000 READINESS DISCLOSURE

Many currently installed computer systems and software products are coded to accept only two digit entries in the date code field. These date code fields will need to accept four digit entries to distinguish twenty-first century dates from twentieth century dates. As a result, many companies' software and computer systems may need to be upgraded or replaced in order to comply with such "Year 2000" or "Y2K" requirements.

Harmonic has established a corporate-wide program to address the Y2K issue. This program encompasses product, internal systems and supplier and business partner compliance. The project is comprised of identification of risks, assessment of risks, development of remediation or contingency plans and implementation and testing.

Based upon the assessments to date, all hardware products currently under development or released, and all software products currently under development are Y2K compliant. Certain software products currently installed at customer sites are not Y2K compliant and Harmonic is working with its customers to provide migration paths for each product. Harmonic's significant internal systems have been purchased from outside vendors and are Y2K compliant. Harmonic is in the process of upgrading internal systems that are not currently Y2K compliant, and expects to have this process

completed by mid-1999. To date, Y2K costs have not been material to Harmonic and Harmonic does not expect that its Y2K costs will exceed \$100,000 in the future. Harmonic currently does not have a contingency plan to address Y2K issues related to its products and internal systems, but will develop a contingency plan by mid-1999 if its products and internal systems are not yet Y2K compliant.

In addition, Harmonic is working with its suppliers and business partners to identify at what stage they are in the process of identifying and addressing the Y2K issue and to assess the resulting risks and develop appropriate contingency plans. Harmonic will continue to perform compliance reviews and tests to ensure compliance on an ongoing basis. Harmonic currently does not anticipate that the cost of its Y2K program will be material to its financial condition and results of operations.

Although Harmonic has established and commenced its program to address Y2K issues, the failure of Harmonic products to operate properly with regard to the Y2K requirements could (a) cause Harmonic to incur unanticipated expenses to remedy any problems, (b) cause a reduction in sales and (c) expose Harmonic to related litigation by its customers, each of which could harm our business, operating results and financial condition. In addition, Harmonic and third parties with whom it conducts business may utilize equipment or software that may not be Y2K compliant. Failure of Harmonic's or any such third party's equipment or software to operate properly with regard to the Y2K requirements could cause, among other things, Harmonic or any such third party to incur unanticipated expenses or efforts to remedy any problems, which could have a material adverse effect on its or their respective business, operating results and financial condition. Furthermore, the purchasing patterns of customers or potential customers may be affected by Y2K issues as companies expend significant resources to evaluate and to correct their equipment or software for Y2K compliance and as they simultaneously evaluate the preparedness of the third parties with whom they deal. These expenditures may result in reduced funds available to purchase products and services such as those offered by Harmonic, which could have a material adverse effect on Harmonic business, operating results and financial condition.

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## BUSINESS

### OVERVIEW

Harmonic designs, manufactures and markets digital and fiber optic systems for delivering video, voice and data services over cable, satellite and wireless networks. Our advanced solutions enable cable television and other network operators to provide a range of broadcast and interactive broadband services that include high-speed Internet access, telephony and video on demand. We offer a broad range of fiber optic transmission and digital headend products for hybrid fiber coax, satellite and wireless networks, and our acquisition of New Media Communication, Ltd. in January 1998 has allowed us to develop and expand our product offerings to include high-speed data delivery software and hardware.

### INDUSTRY BACKGROUND

#### Demand for Broadband Access

The demand for broadband access has increased significantly in recent years due in large part to the dramatic growth of the Internet, which has facilitated commercial applications such as telecommuting and electronic commerce as well as widespread use of the Web for communicating and accessing information. IDC estimates that the number of devices that access the Internet worldwide will increase from approximately 78 million at the end of 1997 to approximately 515 million by the end of 2002. Rapid growth in the number of Internet users and the demand for more bandwidth-intensive video, voice and data content has strained existing communications networks and created bottlenecks, especially in the "last mile" of the communications infrastructure where homes connect to the local network. Increasingly, individuals who experience the value of high-speed Internet access from their work locations are demanding similar levels of speed from their home or laptop connection. Access to the Internet over the last mile using standard telephone dial-up connections, however, has been limited generally to speeds of up to 56Kbps.

#### Competition and Deregulation

Increased demand for high-speed broadband access, combined with recent and proposed regulatory reform, has spurred competition among communications service providers worldwide to offer combinations of video, voice and data services. Historically, U.S. long distance carriers and regional Bell operating companies, or RBOCs, were generally limited to providing only telephony services in the residential market. Cable television multiple system operators, or MSOs, also



were generally limited to providing video programming. As a result, neither the RBOCs nor the cable operators had networks conducive to providing high-speed data services to residential subscribers. The Telecommunications Act of 1996, however, permitted cable operators, long-distance carriers and local exchange carriers such as the RBOCs to enter each other's markets. As a result, AT&T has acquired TCI and announced plans to offer broadband and interactive services, including telephony, on a broad scale over TCI's cable systems in the next few years. Similarly, RBOCs are deploying various digital subscriber line technologies, or xDSL, for high-speed data services over their existing copper networks. A number of RBOCs also have deployed alternative delivery systems such as hybrid fiber coax, or HFC, fiber to the curb and wireless for data and video transmission. In certain major metropolitan areas, new carriers have entered the market. For example, companies such as RCN and 21st Century are building state of the art HFC networks to compete with incumbent RBOCs and cable operators.

Similar deregulation of telecommunications and broadcasting abroad has fostered substantial growth and competition in many foreign communications markets. The emergence of direct broadcast satellite, or DBS, systems internationally and in the United States has subjected cable operators to

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increasing competitive pressures. DBS systems offer consumers up to 200 channels of digital video programming. In addition, operators in other countries with more established DBS infrastructures are introducing data services to meet the growing demand from residential and small business customers for Internet access.

#### Response of the Cable Operators

To address increasing competition and demand for high-speed broadband services, cable operators are introducing voice and data services in addition to video. By offering bundled packages of broadband services, cable operators are seeking to obtain a competitive advantage over telephone companies and DBS providers and to create additional revenue streams.

In order to provide high-speed Internet access, cable operators are beginning to deploy cable modems in a number of major metropolitan areas. Cable modems provide significantly faster and easier access to the Internet than traditional 28Kbps or 56Kbps telephone modems. Cable modems are frequently offered in conjunction with Internet content services such as @Home or Road Runner by cable operators, which seek to accelerate customer adoption by providing a complete hardware and content package. The number of cable modem subscribers in the U.S. at the end of 1998 was estimated to be approximately 500,000, compared to approximately 100,000 in 1997. Forecasts from Paul Kagan Associates suggest that over five million cable modems will be deployed by 2001.

Similarly, cable operators are upgrading and rebuilding their networks to offer digital video, which enables cable operators to provide more channels and better picture quality. Paul Kagan Associates estimated that of the approximately 65 million U.S. cable subscribers, approximately one million homes would install digital set top boxes by the end of 1998 and approximately 7.7 million homes will install digital set top boxes by the end of 2000. Additionally, the FCC has mandated that broadcasters convert to digital format by 2006. Operators, nevertheless, will have to work with both analog and digital video signals for many years.

As telephone carriers are planning to offer broadband voice, data and video services, cable operators are also upgrading and building out their HFC network architectures to provide telephony services. AT&T has set targets of 30% local telephone market share in its initial deployments in TCI systems. In joint venture agreements with partners such as Time Warner, AT&T has guaranteed minimum levels of up to 25% telephony penetration within six years.

The ability of cable operators to deliver digital video, voice and high-speed data services on a broad scale, however, is constrained by the designs of their legacy networks. These networks, which pass more than 90% of U.S. homes, were built initially for one-way broadcast analog television and require substantial upgrades to make them capable of reliably supporting two-way digital services, such as high-speed Internet access and telephony.

#### Development of the Cable System Network Architecture

The introduction and deployment of hybrid fiber coax network architectures has significantly increased network capacity, quality and reliability. The higher bandwidth of fiber can increase capacity to up to 110 analog channels. Video compression technologies can further extend the capacity of cable television systems to several hundred channels. However, to accommodate the interactive nature of telephony and Internet services, these networks require installation of return path equipment for the transmission of video, voice and data on the return path from the subscriber to the headend. Additionally, the introduction of telephony service will require the deployment of fiber closer to the subscriber and therefore increase the amount of optical fiber and fiber optic equipment in an HFC network. In order to reliably deliver telephony and data services for large numbers of subscribers, optical fiber will need to serve approximately 50-home groups, as opposed to the 500 to 1,000 home groups that are common in today's networks.

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In addition to upgrading and extending network infrastructure with fiber optics, it will be necessary for cable operators to invest in new digital headend equipment that can receive and process content from a variety of sources in different formats and protocols. Interfaces to wired and wireless, analog and digital, and local and remote sources will increase the complexity of local headends. Moreover, the desire to tailor services to specific groups of customers will require flexibility and ease of configuration at the local network headend.

#### The Market Opportunity

The upgrade and extension of existing networks to facilitate high-speed broadband video, voice and data services require substantial expenditure and the replacement of significant portions of the transmission network. To date, cable operators have been slow to upgrade their cable plants and network infrastructure due to capital constraints and the need to achieve significant economies of scale to justify such expenditures. Competitive pressures and the desire to capture new revenue opportunities, however, have induced major cable operators to focus on achieving economies of scale by increasing the size of their cable systems. This has been accomplished largely through cable system exchanges and the acquisition of smaller cable operators and independent operators, many of which could not afford the significant costs necessary to upgrade their systems. Having achieved a significant degree of consolidation, many cable operators are now turning their attention to investment in new infrastructure equipment.

As a result of growing demand for broadband services, development and deployment of enabling technologies, significant regulatory change, rapidly increasing competition and considerable industry consolidation, substantial new investments in the cable industry are providing the capital necessary to accelerate the upgrade of the cable infrastructure. Recent examples of this increased investment activity include:

- In 1997, Microsoft invested \$1 billion in Comcast;
- In 1998, Paul Allen acquired Charter Communications for \$4.5 billion and purchased a controlling interest in Marcus Cable for \$2.8 billion;
- In 1999, AT&T completed the acquisition of TCI for approximately \$60 billion and has entered into joint ventures with Time Warner and a number of smaller cable operators.

As cable operators upgrade their networks to meet market demands, we believe that increased recognition of the value of cable networks as a medium for high-speed, interactive video, voice and data, their strategic access to homes and the improved financial strength of cable operators represent a significant market opportunity for broadband communications equipment vendors. Moreover, we believe that these equipment vendors will also benefit from growth in the services offered by wireless, satellite and other broadband service providers.

#### THE HARMONIC SOLUTION

Harmonic develops, manufactures and markets digital and fiber optic systems for delivering video, voice and data services over cable, wireless and satellite networks. Our technical strengths in optics have allowed us to develop reliable, highly integrated systems that enable cable operators to transport digital

video, a greater number of channels and a choice of programming packages over their fiber optic networks. In addition, our advanced solutions enable cable and other network operators to provide a range of broadcast and interactive broadband services that include high-speed Internet access, telephony and video on demand.

Fiber Optics Products. Our optical transmission products, node and return path products, and element management hardware and software allow operators to deliver traditional broadcast video services while supporting the roll-out of emerging interactive services and managing the fiber network.

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Our new METROLink dense wave division multiplexing, or DWDM, solution also allows cable operators to provide video, voice and data services directly from the network headend to distributed nodes, thereby simplifying network architecture and eliminating the need to install complex electronics in multiple hubs, which significantly reduces the size of hubs and the associated building and maintenance costs.

TRANsend Digital Headend System. Our digital TRANsend platform gives cable, wireless and satellite service providers the flexibility to combine and customize content from a variety of sources for seamless integration and delivery of voice, video and data to different subscriber groups. The TRANsend system leverages our expertise in combining and transporting Internet Protocol, or IP, data together with digital video. In addition, the TRANsend platform is designed to be compliant with established international digital video standards, providing interoperability with equipment from other manufacturers, such as set-top boxes.

CyberStream System. Our CyberStream product line, which we developed and introduced in 1998 following our purchase of New Media Communication, Ltd., provides a low cost, end to end hardware and software solution for high-speed data delivery, primarily over satellite and wireless networks to residential and business users. These products can support transmission rates of up to 48 Megabits per second.

Our products incorporate network management systems employing internally developed hardware and software to monitor and control the network and increase system availability. The "plug and play" design philosophy and network management employed in our products further enhance ease of installation and operation.

#### STRATEGY

The key elements of Harmonic's business strategy are as follows:

Develop New Products to Meet Cable Operators' Emerging Broadband Needs. We will continue to develop products to assist cable operators in the introduction of new broadband services and in the design of new network architectures. We believe that the strength of our core technologies and the expertise of our engineering and manufacturing personnel will contribute to the continued development of products that address customer needs in both their transmission networks and their headends. Our recently introduced DWDM and scaleable node products, for example, illustrate our commitment to assisting our customers to reliably and cost-effectively equip their networks for the deployment of new services. Our digital headend products provide operators with the flexibility to market services tailored to particular groups of subscribers. We will continue to design and manufacture products to meet emerging and existing industry standards to facilitate interoperability with other manufacturers' equipment.

Increase Penetration of Major Cable Operators. The five largest U.S. cable operators, which serve a majority of domestic cable subscribers, have purchased a significant amount of our products. We will continue to leverage our close relationships with these and other cable operators to promote increased usage and deployment of our products, particularly as they upgrade and expand their networks through internal build-out or by acquisition of smaller systems. Our sales force and technical personnel work closely with cable operators as part of the sales process to ensure that our products meet cable operators' evolving application needs and technical specifications. We have reorganized and intend to expand our direct sales force to maintain close contact and further develop our relationships with major cable operators.

Provide Highly Integrated Systems. We provide highly integrated systems that allow network operators to manage increasingly complex networks and thereby reduce maintenance and operating costs. To address cable operators' requirements for comprehensive network and headend solutions, our

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products include a wide range of forward and return path optical transmitters and receivers and a growing portfolio of products for digital headends. We also incorporate network management functions into all of our products, enabling operators to enhance network reliability and optimize system performance. As operators introduce new services over more complex networks, the need for integration and sophisticated network management is becoming more critical. We also design "plug and play" capabilities into our products, enabling them to be easily installed in an existing network without complex and lengthy setup procedures.

Provide Fiber Optic Products to Telephone Companies. As RBOCs begin to upgrade and deploy networks to provide video programming, we seek to provide the high performance transmission systems required for delivery of this service. For example, we have deployed our transmitters and optical amplifiers at one RBOC. Our products are enabling this RBOC to provide video services in addition to voice and high-speed data in a fiber to the curb application. In order to address the needs of telephone company customers, we intend to expand our sales force to support sales to telephone companies or develop a strategic alliance with one or more current suppliers of telephony transmission equipment. We intend to develop closer working relationships with telephone companies as they deploy broadband services.

Expand in Broadband Wireless and Satellite Markets. Through our acquisition of New Media Communication, Ltd., in January 1998, we have developed and now offer our CyberStream high-speed, broadband data delivery hardware and software products, which enable satellite and broadband wireless operators as well as cable operators to offer high-speed Internet access and video distribution. In addition, our TRANsend digital headend platform allows wireless and satellite providers to combine content from a variety of sources for seamless integration and delivery of digital video and high-speed data. We intend to expand our presence in these emerging markets as wireless and satellite operators introduce broadband services.

Increase Sales in International Markets. We currently supply products to a number of large international customers, including cable operators in Canada, Europe, Asia and Latin America. We intend to continue to supply complete network and headend solutions to these and other operators in various international markets. Although certain international markets are currently depressed, we believe that many of the same factors which are driving the adoption of broadband services in the U.S. are present in foreign markets and will, in time, result in increasing opportunities for sales in these markets. Over the past year we have added regional sales and support centers in Europe and Asia and we intend to continue to expand our operations internationally to meet market demands.

## PRODUCTS

Harmonic designs, develops, manufactures and markets fiber optic transmission and digital systems, comprised of three product families: fiber optic products, TRANsend digital headend products and CyberStream data delivery products. Our products employ internally developed hardware and software to facilitate a high degree of system integration. The "plug and play" design philosophy and network management employed in our products enhance ease of installation and operation.

## FIBER OPTIC PRODUCTS

We have applied our technical strengths in optics and electronics, including expertise with lasers, modulators, and radio frequency technology, to develop products which provide enhanced network reliability and allow broadband service providers to deliver advanced services, including two-way interactive services. We have provided the operator with end-to-end capability in the fiber portion of the network.

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## Optical Transmission Systems

We offer MAXLink transmitters and optical amplifiers, PWRLink transmitters and the METROLink system for a wide range of optical transmission requirements.

**MAXLink Transmitters and Optical Amplifiers.** The MAXLink transmitters and optical amplifiers operate at a wavelength of 1550nm and serve long-haul applications and fiber dense architectures that are beyond the capability of 1310nm transmitters. This system is suited to evolving cable networks employing such features as redundant rings, hub interconnects and broadcast layer transmission.

**PWRLink Transmitters.** The PWRLink series of optical transmitters incorporates semiconductor lasers and provides optical transmission primarily for use at a headend or hub for local distribution to optical nodes and for narrowcasting, which is the transmission of programming to a select set of subscribers.

**METROLink System.** Our METROLink system, the first DWDM system for the cable industry, allows operators to expand the capacity of a single strand of fiber and also to provide high-speed narrowcast services directly from the headend to nodes. This ability largely eliminates the need to locate expensive electronic equipment in each network hub, which significantly reduces the size of hubs and the associated building and equipment maintenance costs. By increasing the downstream and upstream capacity of existing optical fiber, METROLink also can eliminate the often significant expense associated with laying additional fiber.

## Optical Node Receivers, Return Path and Network Management Products

We offer a number of optical nodes, return path transmitters and return path receivers to provide two-way transmission capability. In addition, we offer network management hardware and software to enable the network operator to monitor and control the entire transmission network.

**PWRBlazer Optical Node Receivers.** Our PWRBlazer optical node receivers convert optical signals received from the transmitters into radio frequency signals for transmission to the home via coaxial cable. We offer a variety of receiver products for applications including indoor and outdoor use, all of which can be fitted to support two-way traffic.

**PWRBlazer Scaleable Optical Node.** Our PWRBlazer scaleable optical node is a receiver which can be easily adapted to handle increasing traffic over a fiber network without major reconstruction. It is particularly suited to networks that are expected to handle increasing demands for two-way services and can be flexibly configured to support specific operator requirements.

**Return Path Transmitters and Receivers.** Our return path transmitters support two-way transmission capabilities by sending video, voice and data signals from the optical node to the headend. Signals originating at the home can be sent via the coaxial cable to the optical node and then transmitted in optical form to the headend by the return path transmitter. Our return path receivers operate at the headend to receive return path optical transmission from the return path transmitters.

**NETWatch Management System.** Our NETWatch management system consists of transponders and network management software. The transponders operate in broadband networks to capture measurement data. Harmonic's software enables the broadband service operator to monitor and control the entire HFC transmission network from a central office or remote locations. Our NETWatch software is designed to be integrated into larger network management systems through the use of simple network management protocol, or SNMP.

## TRANSEND DIGITAL HEADEND PRODUCTS

Our TRANSend digital headend platform consists of a number of products for encoding, compressing, multiplexing and modulating digital signals prior to transmission over broadband networks. It also provides interfaces to incoming and outgoing data streams and various protocols and formats.

Video Transport Platform. Our VTP houses configurable combinations of application modules necessary to perform a variety of functions required at a digital headend. It includes a bus system which routes data and control information between the application modules under network management control.

Encoders. Our encoders convert analog and digital video and audio signals to compressed digital format fully compliant with the MPEG-2 standard.

Integrated Receiver eXchange Modules. Our IRX modules receive a number of individually encoded digital program streams originating from multiple sources.

Multiplexers. Our multiplexer module combines multiple MPEG-2 streams into one transport stream as well as authorizing conditional access.

Modulators. Our modulators accept digital signals for modulation on to a radio frequency carrier for transmission over a broadband network.

The following diagram illustrates a TRANsend application.

LOGO

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#### CYBERSTREAM PRODUCTS

CyberStream System. This system enables Internet access and high-speed data delivery primarily over satellite or wireless networks to residential and business subscribers. It is capable of supporting transmission rates of up to 48 Megabits per second which enables applications such as video distribution and distance learning. This system includes a headend data encoder, a network management system and an end-user receiver card which is installed in either a PC or our Enterprisel product.

Enterprisel. The Enterprisel is a network router, which interfaces the CyberStream System with a local area network. It provides desktop broadband access by linking high-speed cable, satellite or wireless networks directly to a LAN.

ProCast. Our ProCast system is a software package that allows service providers to distribute multimedia information to selected groups of end-users at pre-authorized service levels.

The following diagram illustrates a satellite application of our CyberStream System.

LOGO

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#### CUSTOMERS

We sell our products to a variety of broadband communications network operators. Set forth below is a representative list of our customers during 1998.

##### UNITED STATES

Armstrong  
Charter  
Comcast  
Cox  
Jones Intercable  
MediaOne  
RCN  
TCI  
Time-Warner

##### INTERNATIONAL

A provincial PTT in China  
Golden Channels  
NTL  
Rogers  
Shaw  
Tele-2  
Telewest  
Videotron

Historically, the majority of our sales have been to relatively few

customers, and we expect this customer concentration to continue in the foreseeable future. In 1998, sales to TCI accounted for 17% of net sales and sales to a Chinese distributor accounted for 11% of net sales. In 1997, Capella (our Canadian distributor) accounted for 17% of net sales. In 1996, sales to Tratec (our former U.K. distributor), Capella, and ANTEC accounted for 15%, 15%, and 13%, respectively, of net sales. No other customer accounted for more than 10% of our net sales in 1998, 1997 or 1996. The loss of a significant customer or any reduction in orders by any significant customer, or our failure to qualify our products with a significant cable operator could adversely affect our business and operating results.

Sales to customers outside of the United States in 1998, 1997 and 1996 represented 43%, 59% and 57% of net sales, respectively. We expect international sales to continue to account for a substantial portion of our net sales for the foreseeable future. International sales are subject to a number of risks, including changes in foreign government regulations and telecommunications standards, import and export license requirements, tariffs, taxes and other trade barriers, fluctuations in foreign currency exchange rates, difficulty in collecting accounts receivable, difficulty in staffing and managing foreign operations, managing distributor relations and political and economic instability. In recent periods certain Asian and Latin American currencies have devalued significantly in relation to the U.S. dollar. We continue to evaluate the effect of recent developments in Asia and Latin America on our business, and we cannot assure you that our sales will not be materially adversely affected by such developments. We also cannot assure you that international markets will continue to develop or that we will receive future orders to supply our products in international markets at rates equal to or greater than those experienced in recent periods. See "Risk Factors -- We depend on our international sales and are subject to the risks associated with international operations."

#### SALES AND MARKETING

We sell our products in the United States through our own direct sales force which is organized geographically to support major network operators at both the corporate level and in their individual systems. Our sales force is supported by a highly qualified technical staff. Together, they work closely with customers to design systems and develop technical proposals to optimize system performance and economic benefits for the operators. The technical group also assists customers with installation and post-sale support.

International sales are made primarily to distributors, which are generally responsible for importing the products and providing installation and technical support and service to customers in their territory. However, a small direct sales force, based in Sunnyvale, California, and in Europe and

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Asia, is responsible for account management and providing high-level technical support directly to customers as well as to distributors. Our technical group also supports the international sales force.

Because of the cable industry's 24 hour programming requirements, we provide round-the-clock technical support, both directly and through our distributors. We provide training for our customers and distributors, as required, both in our facilities and on-site.

Our marketing organization develops strategies for product lines and, in conjunction with our sales force, identifies evolving technical and application needs of customers so that our product development resources can be most effectively and efficiently deployed to meet anticipated product requirements. Our marketing organization is also responsible for setting price levels, demand forecasting and general support of the sales force, particularly at major accounts. We have many programs in place to heighten industry awareness of Harmonic and our products, including participation in technical conferences, publication of articles in industry journals and exhibiting at trade shows.

#### MANUFACTURING AND SUPPLIERS

Our manufacturing processes consist primarily of integration, final assembly and test, performed by highly trained personnel employing technologically advanced electronic equipment and proprietary test programs. The manufacturing of our products and subassemblies is a complex process and we cannot assure you that we will not experience production problems or

manufacturing delays in the future. Because we utilize our own manufacturing facility for this production, and because such manufacturing capabilities are not readily available from third parties, any interruption in operations could materially and adversely affect our business and operating results.

We use third party contract manufacturers like Sanmina to assemble certain standard parts for our products, including such items as printed circuit boards, metal chassis and power supplies. We intend to subcontract an increasing number of tasks to third parties in the future. Our increasing reliance on subcontractors involves several risks, and we may not be able to obtain an adequate supply of components, subassemblies and modules on a timely basis.

Some components, subassemblies and modules necessary for the manufacture and integration of our products are obtained from a sole supplier or a limited group of suppliers. In particular, we rely on Fujitsu as a major source of lasers for our PWRLink and return path transmitters, for which there are limited alternative suppliers. In addition, certain optical components used in our METROLink and MAXLink products are currently available only from Uniphase Corporation and JDS FITELE, which recently announced their intention to merge. Although we have qualified alternative suppliers for lasers, in the event that the supply of optical components is interrupted for any reason, products from alternative suppliers are unlikely to be immediately available in sufficient volume to meet our production needs. Further, sole suppliers are providing certain key elements of our digital products. The reliance on sole or limited suppliers, particularly foreign suppliers, involves several risks, including a potential inability to obtain an adequate supply of required components or subassemblies and reduced control over pricing, quality and timely delivery of components. Although we attempt to minimize supply risks by holding safety stocks and continuously evaluating other sources, any interruption in supply could materially adversely affect our business and operating results. We do not maintain long-term agreements with any of our suppliers. While we have been able historically to obtain adequate supplies of components in a timely manner from our principal suppliers, we cannot assure you that we will be able to obtain adequate supplies in the future. Because the purchase of certain key components involves long lead times, in the event of unanticipated increases in demand for our products, we could be unable to manufacture certain products in a quantity sufficient to meet our customers' demand. If we cannot obtain adequate deliveries of key components we may not be

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able to ship products on a timely basis. Delays in shipment could damage relationships with current and prospective customers and could harm our business and operating results.

#### INTELLECTUAL PROPERTY

We currently hold 12 issued United States patents and 9 issued foreign patents, and have a number of patent applications pending. Although we attempt to protect our intellectual property rights through patents, trademarks, copyrights, maintaining certain technology as trade secrets and other measures, we cannot assure you that any patent, trademark, copyright or other intellectual property right owned by us will not be invalidated, circumvented or challenged, that such intellectual property right will provide competitive advantages to us or that any of our pending or future patent applications will be issued with the scope of the claims sought by us, if at all. We cannot assure you that others will not develop technologies that are similar or superior to our technology, duplicate our technology or design around the patents that we own. In addition, effective patent, copyright and trade secret protection may be unavailable or limited in certain foreign countries in which we do business or intend to do business in the future.

We believe that the future success of our business will depend on our ability to translate the technological expertise and innovation of our personnel into new and enhanced products. We generally enter into confidentiality or license agreements with our employees, consultants, vendors and customers as needed, and generally limit access to and distribution of our proprietary information. Nevertheless, we cannot assure you that the steps taken by us will prevent misappropriation of our technology. In addition, we have taken in the past, and may take in the future, legal action to enforce our patents and other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity. Such litigation could result in



substantial costs and diversion of resources and could harm our business and operating results.

In order to successfully develop and market our planned products for digital headend applications, we may be required to enter into technology development or licensing agreements with third parties. Although many companies are often willing to enter into such technology development or licensing agreements, we cannot assure you that such agreements will be negotiated on terms acceptable to us, or at all. The failure to enter into technology development or licensing agreements, when necessary, could limit our ability to develop and market new products and could cause our business to suffer.

As is common in our industry, we have from time to time received notification from other companies of intellectual property rights held by those companies upon which our products may infringe. Any claim or litigation, with or without merit, could be costly, time consuming and could result in a diversion of management's attention, which could harm our business. If we were found to be infringing on the intellectual property rights of any third party, we could be subject to liabilities for such infringement, which could be material, and could be required to seek licenses from other companies or to refrain from using, manufacturing or selling certain products or using certain processes. Although holders of patents and other intellectual property rights often offer licenses to their patent or other intellectual property rights, no assurance can be given that licenses would be offered, that the terms of any offered license would be acceptable to us or that failure to obtain a license would not cause our operating results to suffer.

#### BACKLOG

We schedule production of our systems based upon our backlog, informal commitments from customers and sales projections. Our backlog consists of firm purchase orders by customers for delivery within the next twelve months. At December 31, 1998, order backlog amounted to

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\$20.8 million, compared to \$5.5 million at December 31, 1997. Anticipated orders from customers may fail to materialize and delivery schedules may be deferred or canceled for a number of reasons, including reductions in capital spending by cable television operators or changes in specific customer requirements. In addition, due to weather-related seasonal factors and annual capital spending budget cycles at many major end-users, our backlog at December 31, 1998 or any other date, is not necessarily indicative of actual sales for any succeeding period.

#### COMPETITION

The markets for cable television equipment and other broadband communications equipment are extremely competitive and characterized by rapid technological change. The principal competitive factors in these markets include product performance, reliability, price, breadth of product line, network management capabilities, sales and distribution capability, technical support and service and relationships with network operators. Certain of these factors are outside of our control.

Our competitors for fiber optic transmission products include established suppliers of cable television and telecommunications equipment such as ADC Telecommunications, ANTEC, General Instrument, Philips and Scientific-Atlanta, as well as a number of smaller, more specialized companies. For digital headend products, our competitors include many of the same competitors as in fiber optic transmission products, and a number of new competitors, including Divicom, a division of C-Cube and Lucent Technologies. Competitors for CyberStream products in the satellite and wireless market include Broadlogic, Echostar, Hybrid Networks, SAGEM and Philips. Most of our competitors are substantially larger and have greater financial, technical, marketing and other resources than we do. Many of our larger competitors are in a better position to withstand any significant reduction in capital spending by cable television operators and other broadband service providers. In addition, many of our competitors have more long-standing and established relationships with domestic and foreign cable operators than we do.

#### RESEARCH AND DEVELOPMENT

We have historically devoted a significant amount of our resources to research and development. Research and development expenses in 1998, 1997 and 1996 were \$13.5 million, \$11.7 million, and \$9.2 million, respectively. We expect that research and development expenses will continue to increase in the future.

Our success in designing, developing, manufacturing and selling new or enhanced products will depend on a variety of factors, including the identification of market demand for new products, product selection, timely implementation of product design and development, product performance, effective manufacturing and assembly processes and sales and marketing. Because of the complexity inherent in such research and development efforts, we cannot assure you that we will successfully develop new products, or that new products developed by us will achieve market acceptance. Our failure to successfully develop and introduce new products could harm our business and operating results.

EMPLOYEES

As of December 31, 1998, we employed a total of 293 people, including 101 in manufacturing operations, 82 in research and development, 77 in sales and marketing and 33 in a general and administrative capacity. We also employ a number of temporary employees and consultants on a contract basis. None of our employees is represented by a labor union with respect to his or her employment by Harmonic. We have not experienced any work stoppages and we consider our relations with our employees to be good. Our future success will depend, in part, upon our ability to attract and retain qualified personnel. Competition for qualified personnel in the communications

industry and in our immediate geographic area is intense, and we cannot assure you that we will be successful in retaining our key employees or that we will be able to attract skilled personnel as we grow.

PROPERTIES

Our principal operations are located at our corporate headquarters in Sunnyvale, California. The lease on our headquarters building, of approximately 110,000 square feet, expires in July 2006. We have subleased approximately 25,000 square feet of our headquarters through December 1999. We also have several sales offices in the United States, sales and support centers in Europe and Asia and two subsidiaries, New Media Communication, Ltd., and a research and development facility in Israel. We believe that our existing facilities will be adequate to meet our needs for the foreseeable future.

LEGAL PROCEEDINGS

There are no material pending legal proceedings to which we are a party or to which any of our properties is subject.

MANAGEMENT

The following table sets forth certain information regarding the directors and executive officers of Harmonic and their ages as of March 1, 1999:

NAME ----	AGE ---	POSITION -----
Anthony J. Ley.....	60	Chairman of the Board of Directors, President and Chief Executive Officer
Moshe Nazarathy.....	47	Senior Vice President, General Manager Israel R&D Center, Director
Robin N. Dickson.....	51	Chief Financial Officer
Michael Yost.....	55	Vice President, Operations
D. Colin Boyd.....	47	Vice President, Sales (North America) and Marketing

Israel Levi.....	59	Vice President, Research and Development
E. Floyd Kvamme.....	61	Director
David A. Lane.....	40	Director
Barry D. Lemieux.....	59	Director
Michel L. Vaillaud.....	67	Director

Anthony J. Ley has served as Harmonic's President and Chief Executive Officer since November 1988. Mr. Ley was elected Chairman of the Board of Directors in February 1995. From 1963 to 1987, Mr. Ley was employed at Schlumberger, both in Europe and the United States, holding various senior business management and research and development positions, most recently as Vice President, Research and Engineering at Fairchild Semiconductor/Schlumberger in Palo Alto, California. Mr. Ley holds an M.A. in mechanical sciences from the University of Cambridge and an S.M.E.E. from the Massachusetts Institute of Technology, is named as an inventor on 29 patents and is a Fellow of the I.E.E. (U.K.) and a senior member of the I.E.E.E.

Moshe Nazarathy, a founder of Harmonic, has served as Senior Vice President, General Manager of Israel R&D Center, since December 1993, as a director of Harmonic since Harmonic's inception and as Vice President, Research, from Harmonic's inception through December 1993. From 1985 to 1988, Dr. Nazarathy was employed in the Photonics and Instruments Laboratory of Hewlett-Packard Company, most recently serving as Principal Scientist from 1987 to 1988. From 1982 to 1984, Dr. Nazarathy held post-doctoral and adjunct professor positions at Stanford University. Dr. Nazarathy holds a B.S. and a Ph.D. in electrical engineering from Technion-Israel Institute of Technology and is named as an inventor on twelve patents.

Robin N. Dickson joined Harmonic in April 1992 as Chief Financial Officer. From 1989 to March 1992, Mr. Dickson was corporate controller of Vitelic Corporation, a semiconductor manufacturer. From 1976 to 1989, Mr. Dickson held various positions at Raychem Corporation, a materials science company, including regional financial officer of the Asia-Pacific Division of the International Group. Mr. Dickson holds a Bachelor of Laws from the University of Edinburgh and is a member of the Institute of Chartered Accountants of Scotland.

Michael Yost joined Harmonic in September 1991 as Vice President, Operations. From 1983 until December 1990, Mr. Yost was employed at Vitalink Communications, a satellite communications systems manufacturer, holding various senior management positions, most recently as Vice President, Operations. Mr. Yost holds a B.S. in management from San Jose State University.

D. Colin Boyd joined Harmonic in June 1998 as Vice President, Sales (North America) and Marketing. From January 1997 to May 1998, Mr. Boyd was Vice President of International Sales Operations, Satellite Networks Division at General Instrument, a communications equipment manufacturer. Previously, Mr. Boyd was employed at Scientific-Atlanta, a communications equipment manufacturer, where he held the position of Director, Business Television and Specialty Markets from

December 1994 to December 1996 and the position of Director, Domestic Product Line from November 1989 until December 1994. Mr. Boyd holds an M.Sc. in Electrical Engineering from the University of British Columbia and a B.Sc. in Electronics Engineering from Queen's University, Belfast, Northern Ireland.

Israel Levi joined Harmonic in July 1989 and has served as Vice President, Research and Development since May 1996. Between July 1989 and May 1996, Mr. Levi held various product management and product development positions at Harmonic. From 1988 to 1989, Mr. Levi served in product development at DSC, a telecommunications systems company, and from 1984 to 1988, Mr. Levi served as Director of CATV Products Division at Catel Communications, a telecommunications equipment manufacturer. Mr. Levi holds an M.S. in Electrical Engineering from Carleton University, Ottawa, Canada and a B.S. in Electrical Engineering from Technion-Israel Institute of Technology.

E. Floyd Kvamme has been a director of Harmonic since January 1990. Since 1984, Mr. Kvamme has been a general partner of Kleiner Perkins Caufield & Byers, a venture capital firm. Mr. Kvamme is also a director of Brio Technology, National Semiconductor, Prism Solutions, Photon Dynamics, Power Integrations, TriQuint Semiconductor, and several private companies. Mr. Kvamme holds a B.S.E.E. from the University of California, Berkeley and an M.S.E.E. from

Syracuse University.

David A. Lane has been a director of Harmonic since June 1992. Since December 1994, Mr. Lane has been a general partner and co-founder of Alpine Technology Ventures, a venture capital firm. From August 1987 to December 1994, he was a Vice President at the Harvard Private Capital Group, the investment affiliate through which the Harvard Management Company makes private and direct investments. Mr. Lane is also a director of several private companies. Mr. Lane holds a B.S.E.E. from the University of Southern California and an M.B.A. from Harvard University.

Barry D. Lemieux has been a director of Harmonic since January 1996. Now retired, from 1978 to 1988 Mr. Lemieux was with American Cablesystems Corporation, most recently as President and Chief Operating Officer. In addition to marketing and general management positions with the New York Telephone Company and Continental Cablevision, Mr. Lemieux has served on numerous cable television industry committees, is a former director of the Cable Advertising Bureau (CAB) and past Chairman of the Cable Television Administration and Marketing Society (CTAM). Mr. Lemieux holds a B.A. in history from Hofstra University and an M.A.T. from Harvard University.

Michel L. Vaillaud has been a director of Harmonic since March 1997. Now retired, from 1973 to 1986 Mr. Vaillaud was with Schlumberger, Limited, most recently as Chairman and Chief Executive Officer. He is a graduate of Ecole Polytechnique in Paris and Ecole Nationale Superieure des Mines in Paris. He serves as a Trustee of the Institute of Advanced Studies in Princeton, New Jersey.

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#### SELLING STOCKHOLDERS

The following table sets forth information known to Harmonic with respect to the beneficial ownership of its common stock held by each selling stockholder as of March 1, 1999, and as adjusted to reflect the sale of common stock offered hereby by such stockholder. As of March 1, 1999, there were 11,969,776 shares of common stock outstanding.

NAME AND ADDRESS -----	NUMBER OF SHARES OFFERED(2) -----	PERCENT BENEFICIALLY OWNED(1) (2) -----	
		BEFORE OFFERING -----	AFTER OFFERING -----
Scientific-Atlanta, Inc.(3)..... One Technology Parkway, South Norcross, Georgia 30092	720,000	5.7%	--
N.M. New Media Entertainment, Ltd.(4)..... 10 Beit Shamai Street Tel Aviv, Israel 67018	45,000	3.6%	2.6%
Anthony J. Ley(5) (6).....	30,000	2.8%	2.1%
Robin N. Dickson(5) (7).....	5,000	*	*

\* Less than 1%

(1) Based upon outstanding shares of Harmonic common stock as of March 1, 1999.

(2) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission. The number of shares beneficially owned by a person includes shares of common stock subject to options held by that person that are currently exercisable or exercisable within 60 days of March 1, 1999. Such shares issuable pursuant to such options are deemed outstanding for computing the percentage ownership of the person holding such options but are not deemed outstanding for the purposes of computing the percentage ownership of each other person.

(3) Includes 720,000 shares of Harmonic common stock issuable upon exercise of a warrant granted to Scientific-Atlanta, Inc. See "Description of Capital Stock -- Warrant."

- (4) Includes 400,369 shares owned and 32,946 shares of Harmonic common stock exercisable within 60 days of March 1, 1999 held by Effi Atad, an officer and principal shareholder of N.M. New Media Entertainment, Ltd.
- (5) This selling stockholder's address is: c/o Harmonic Inc., 549 Baltic Way, Sunnyvale, California 94089.
- (6) Includes 216,976 shares of Harmonic common stock subject to options to purchase common stock exercisable within 60 days of March 1, 1999.
- (7) Includes 54,641 shares of Harmonic common stock subject to options to purchase common stock exercisable within 60 days of March 1, 1999.

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## DESCRIPTION OF CAPITAL STOCK

### GENERAL

Harmonic is authorized to issue 50,000,000 shares of common stock, \$0.001 par value, and 5,000,000 shares of undesignated preferred stock, \$0.001 par value. The following description of Harmonic's capital stock does not purport to be complete and is subject to and qualified in its entirety by Harmonic's restated certificate of incorporation and bylaws, and by the provisions of applicable Delaware law.

### COMMON STOCK

As of March 1, 1999, there were 11,969,776 shares of common stock outstanding which were held of record by approximately 111 stockholders.

The holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the Board of Directors out of funds legally available for that purpose. See "Dividend Policy." In the event of a liquidation, dissolution or winding up of Harmonic, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding. The common stock has no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and nonassessable, and the shares of common stock to be issued upon the closing of this offering will be fully paid and nonassessable.

### PREFERRED STOCK

The Board of Directors has the authority, without action by the stockholders, to designate and issue preferred stock in one or more series and to designate the rights, preferences and privileges of each series, any or all of which may be greater than the rights of the common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock upon the rights of holders of the common stock until the Board of Directors determines the specific rights of the holders of such preferred stock. However, the effects might include, among other things, restricting dividends on the common stock, diluting the voting power of the common stock, impairing the liquidation rights of the common stock and delaying or preventing a change in control of Harmonic without further action by the stockholders. Harmonic has no present plans to issue any shares of preferred stock.

### WARRANT

At March 1, 1999, there was one warrant outstanding to purchase a total of 798,748 shares of common stock. Pursuant to an agreement between the holder of the warrant, Scientific-Atlanta, Inc., and Harmonic, subject to certain restrictions, this warrant will become exercisable immediately prior to the effectiveness of the registration statement relating to this offering. As consideration for the acceleration of exercisability of this warrant and the inclusion of the shares subject to this warrant in this offering, Scientific-Atlanta has agreed to reduce the number of shares of Harmonic common stock issuable upon exercise of the warrant to 720,000 shares.

## REGISTRATION RIGHTS

Prior to the consummation of this offering, under the terms of a registration rights agreement among Harmonic and certain holders of its securities, a holder of a warrant to purchase 798,748 shares of common stock (the "registrable securities") will be entitled to certain rights with

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respect to the registration of such shares of common stock under the Securities Act. However, in the event that this holder sells shares of common stock in this offering, as is contemplated by this prospectus, no holders of shares of common stock shall be entitled to registration rights under this registration rights agreement. Under this registration rights agreement, if Harmonic proposes to register any of its common stock under the Securities Act, some holders of registrable securities are entitled to notice of such registration and to include their registrable securities therein; provided that the underwriters have the right to limit the number of shares included in any such registration. Under the registration rights agreement, the holders of at least fifty percent (50%) of the registrable securities have the right to require Harmonic, on not more than two occasions, to file a registration statement under the Securities Act in order to register all or any part of their registrable securities. Harmonic may, in certain circumstances, defer such registration and the underwriters have the right, subject to certain limitations, to limit the number of shares included in such registrations. Further, the holders of registrable securities may require Harmonic to register all or any portion of their registrable securities on Form S-3, when such form becomes available to Harmonic, subject to some conditions and limitations.

The holders (and their permitted transferees) of 425,222 shares of common stock, which were received in connection with the acquisition of NMC, have rights with respect to the registration of these shares under the Securities Act. Of these shares, 45,000 shares are being offered hereby and 355,369 shares are subject to a 90-day lock-up pursuant to which such shares cannot be sold. Pursuant to these registration rights, Harmonic filed a Form S-3 registration statement with the Commission on January 8, 1998 pursuant to which former shareholders of NMC have sold and may continue to sell shares received in connection with the acquisition of NMC. However, N.M. New Media Entertainment, Ltd., a selling stockholder hereunder, has agreed not to sell more than an aggregate of 448,259 shares of common stock prior to January 5, 2000. All expenses in connection with such registration have been borne by Harmonic.

## DELAWARE ANTI-TAKEOVER LAW AND CERTAIN CHARTER AND BYLAW PROVISIONS

Certain provisions of Delaware law and Harmonic's Restated Certificate of Incorporation and Bylaws could make more difficult the acquisition of Harmonic by means of a tender offer, a proxy contest or otherwise and removal of incumbent officers and directors. These provisions, summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of Harmonic to first negotiate with Harmonic. Harmonic believes that the benefits of increased protection of Harmonic's potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure Harmonic outweigh the disadvantages of discouraging such proposals because, among other things, negotiation of such proposals could result in an improvement of their terms.

Harmonic is subject to Section 203 of the Delaware General Corporation Law, an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the date the person became an interested stockholder, unless (with certain exceptions) the "business combination" or the transaction in which the person became an interested stockholder is approved in a prescribed manner. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns (or within three years prior to the determination of interested stockholder status, did own) 15% or more of a corporation's voting stock. Existence of this provision would be expected to have an anti-takeover effect with respect to transactions not approved in advance by the Board of Directors, including discouraging attempts that might result in a premium over the market

price for the shares of common stock held by stockholders.

Harmonic's Restated Certificate of Incorporation and Bylaws do not provide for cumulative voting in the election of directors. The authorization of undesignated preferred stock makes it possible for the Board of Directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of Harmonic. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of Harmonic.

TRANSFER AGENT AND REGISTRAR

The transfer agent and registrar for the common stock is ChaseMellon Shareholder Services, San Francisco, California.

UNDERWRITING

Harmonic and the underwriters for the offering named below, for whom Warburg Dillon Read LLC, CIBC Oppenheimer Corp., SG Cowen Securities Corporation and SoundView Technology Group, Inc. are acting as representatives have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table.

UNDERWRITERS -----	NUMBER OF SHARES -----
Warburg Dillon Read LLC.....	
CIBC Oppenheimer Corp.....	
SG Cowen Securities Corporation.....	
SoundView Technology Group, Inc. ....	
	-----
Total.....	2,800,000 =====

If the underwriters sell more than the total number set forth in the table above, the underwriters have an option to buy up to an additional 420,000 shares from Harmonic to cover such sales. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the Underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by Harmonic. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PAID BY HARMONIC	
	NO EXERCISE -----	FULL EXERCISE -----
Per Share.....	\$	\$
Total.....	\$	\$

Shares sold by the underwriters to the public will initially be offered at the public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to \$ per share from the public offering price. Any such securities dealers may resell any shares purchased from the underwriters to certain other brokers or dealers at a discount of up to \$ per share from the public offering

price. If all the shares are not sold at the offering price, the Representatives may change the offering price and the other selling terms.

Harmonic, its directors and executive officers and certain other employees have agreed with the underwriters not to dispose of or hedge any of their common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 90 days after the date of this prospectus, except with the prior written consent of Warburg Dillon Read LLC. This agreement does not apply to issuances or sales by Harmonic pursuant to any existing employee benefit plans or upon conversion or exchange of any currently outstanding convertible or exchangeable securities.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the Common Stock while the offering is in progress.

The underwriters also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the

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representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

These activities by the underwriters may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected on the Nasdaq National Market, in the over-the-counter market or otherwise.

In connection with this offering, certain underwriters and selling group members (if any) who are qualified market makers on the Nasdaq National Market may engage in passive market making transactions in the Common Stock on the Nasdaq National Market in accordance with Rule 103 of Regulation M under the Securities Exchange Act of 1934, as amended, during the business day prior to the pricing of the offering before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as such. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid of such security; if all independent bids are lowered below the passive market makers' bid, however, such bid must then be lowered when certain purchase limits are exceeded.

Harmonic estimates that its share of the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately \$475,000.

Harmonic has agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

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#### INDEMNIFICATION OF DIRECTORS AND OFFICERS

Harmonic's Restated Certificate of Incorporation, as amended, limits, to the maximum extent permitted by Delaware law, the personal liability of directors for monetary damages for breach of their fiduciary duties as a director. Harmonic's Bylaws provide that Harmonic shall indemnify its officers and directors and may indemnify its employees and other agents to the fullest extent permitted by Delaware law. Harmonic has entered into indemnification agreements with its officers and directors containing provisions which are in some respects broader than the specific indemnification provisions contained in the Delaware General Corporation Law. The indemnification agreements require Harmonic, among other things, to indemnify such officers and directors against



certain liabilities that may arise by reason of their status or service as directors or officers (other than liabilities arising from willful misconduct of a culpable nature), to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified, and to obtain directors' and officers' insurance, if available on reasonable terms. Harmonic believes that these agreements are necessary to attract and retain qualified persons as directors and officers.

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify a director, officer, employee or agent made a party to an action by reason of that fact that he or she was a director, officer, employee or agent of the corporation or was serving at the request of the corporation against expenses actually and reasonably incurred by him or her in connection with such action if he or she acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the corporation and with respect to any criminal action, had no reasonable cause to believe his or her conduct was unlawful.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling Harmonic pursuant to the foregoing provisions, Harmonic has been informed that, in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

#### WHERE YOU CAN FIND MORE INFORMATION

Harmonic files annual, quarterly and special reports, proxy statements and other information with the Securities and Exchange Commission. You can inspect and copy the Registration Statement on Form S-3 of which this prospectus is a part, as well as reports, proxy statements and other information filed by Harmonic, at the public reference facilities maintained by the Securities and Exchange Commission at Room 1024, 450 Fifth Street, N.W., Washington, D.C. 20549, and at the following regional offices of the Securities and Exchange Commission: 7 World Trade Center, Suite 1300, New York, New York 10048 and Citicorp Center, 500 West Madison Street, Suite 1400, Chicago, Illinois 60661. You can obtain copies of such material from the Public Reference Room of the Securities and Exchange Commission at 450 Fifth Street, N.W., Washington, D.C. 20549, at prescribed rates. You can call the Securities and Exchange Commission at 1-800-732-0330 for information regarding the operations of its Public Reference Room. The Securities and Exchange Commission also maintains a World Wide Web site at <http://www.sec.gov> that contains reports, proxy and information statements, and other information regarding registrants (like Harmonic) that file electronically.

The Securities and Exchange Commission allows this Prospectus to "incorporate by reference" certain other information that Harmonic files with them (File No. 000-0851310), which means that we can disclose important information to you by referring to those documents. The information incorporated by reference is an important part of this prospectus, and information that Harmonic files later with the Securities and Exchange Commission will automatically update and replace this information. We incorporate by reference the documents listed below and any future filings made by

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Harmonic with the Securities and Exchange Commission under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we have sold all of the securities that we have registered.

1. Our Annual Report on Form 10-K for the year ended December 31, 1998 (including information specifically incorporated by reference into our Form 10-K from our definitive Notice and Proxy Statement for our 1999 Annual Meeting); and
2. The description of our capital stock contained in a Registration Statement on Form 8-A filed on April 7, 1995, including any amendments or reports filed for the purpose of updating such descriptions.

If you make a request for such information in writing or by telephone, we will provide you without charge, a copy of any or all of the information incorporated by reference in the registration statement of which this prospectus is a part. Requests for such information should be submitted in writing to Robin N. Dickson, Chief Financial Officer, at our principal executive offices at

Harmonic Inc., 549 Baltic Way, Sunnyvale, California 94089 or by telephone at (408) 542-2500.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for Harmonic by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California. Jeffrey D. Saper, a member of Wilson Sonsini Goodrich & Rosati and our corporate secretary, beneficially owns approximately 3,200 shares of common stock. Certain legal matters will be passed upon for the underwriters by Brobeck, Phleger & Harrison LLP.

EXPERTS

The consolidated financial statements of Harmonic as of December 31, 1998 and 1997 and for each of the three years in the period ended December 31, 1998, included in this Prospectus have been included in reliance on the report of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

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REPORT OF INDEPENDENT ACCOUNTANTS

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations and stockholders' equity and of cash flows present fairly, in all material respects, the financial position of Harmonic Inc. and its subsidiaries at December 31, 1998 and 1997, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1998 in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

/s/ PRICEWATERHOUSECOOPERS LLP

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PRICEWATERHOUSECOOPERS LLP

San Jose, CA  
January 20, 1999, except as to  
Note 14, which is as of March 15, 1999

## CONSOLIDATED BALANCE SHEETS

	DECEMBER 31,	
	----- 1997	1998 -----
	(IN THOUSANDS, EXCEPT SHARE DATA)	
ASSETS		
Current assets:		
Cash and cash equivalents.....	\$13,670	\$ 9,178
Accounts receivable, net.....	16,458	17,646
Inventories.....	15,474	22,385
Prepaid expenses and other assets.....	1,774	1,175
	-----	-----
Total current assets.....	47,376	50,384
Notes receivable.....	1,300	--
Property and equipment, net.....	10,077	10,726
Intangibles and other assets.....	134	1,314
	-----	-----
	\$58,887	\$ 62,424
	=====	=====
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable.....	\$ 3,708	\$ 7,534
Accrued liabilities.....	4,896	10,355
Current portion of long-term debt.....	--	177
	-----	-----
Total current liabilities.....	8,604	18,066
Long-term debt, less current portion.....	--	400
Other non-current liabilities.....	352	484
Commitments and Contingencies (Notes 11 and 13)		
Stockholders' equity:		
Preferred Stock, \$.001 par value, 5,000,000 shares authorized; no shares issued or outstanding.....	--	--
Common Stock, \$.001 par value, 50,000,000 shares authorized; 11,725,844 and 10,414,297 shares issued and outstanding.....	10	12
Capital in excess of par value.....	55,917	70,924
Accumulated deficit.....	(6,019)	(27,472)
Accumulated other comprehensive income.....	23	10
	-----	-----
Total stockholders' equity.....	49,931	43,474
	-----	-----
	\$58,887	\$ 62,424
	=====	=====

The accompanying notes are an integral part of these consolidated financial statements.

## CONSOLIDATED STATEMENT OF OPERATIONS

	YEAR ENDED DECEMBER 31,		
	----- 1996	1997	1998 -----
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		



options.....	187	--	784	--	--	784
Issuance of Common Stock under Stock Purchase Plan.....	87	--	830	--	--	830
Acquisition of New Media Communication, Ltd. ....	1,038	2	13,393	--	--	13,395
	-----	---	-----	-----	---	-----
Balance at December 31, 1998.....	11,726	\$12	\$70,924	\$(27,472)	\$ 10	\$43,474
	=====	===	=====	=====	=====	=====

The accompanying notes are an integral part of these consolidated financial statements.

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CONSOLIDATED STATEMENT OF CASH FLOWS

	YEAR ENDED DECEMBER 31,		
	1996	1997	1998
	-----	-----	-----
	(IN THOUSANDS)		
Cash flows from operating activities:			
Net income (loss).....	\$ 5,918	\$ 4,929	\$(21,453)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization.....	2,506	3,441	4,283
Acquired in-process technology.....	--	--	14,000
Changes in assets and liabilities, net of effects of acquisition:			
Accounts receivable.....	(6,841)	(3,815)	(1,040)
Inventories.....	(5,606)	(692)	(6,393)
Prepaid expenses and other assets.....	(1,848)	139	1,697
Accounts payable.....	3,403	(1,896)	3,187
Accrued and other liabilities.....	2,781	(140)	3,694
	-----	-----	-----
Net cash provided by (used in) operating activities.....	313	1,966	(2,025)
Cash flows used in investing activities:			
Acquisition of property and equipment.....	(6,743)	(4,767)	(4,384)
Acquisition of New Media Communication, Ltd., net of cash received.....	--	--	(280)
Long-term advances.....	--	(1,300)	--
	-----	-----	-----
Net cash used in investing activities.....	(6,743)	(6,067)	(4,664)
Cash flows from financing activities:			
Proceeds from issuance of Common Stock.....	714	1,338	1,614
Borrowings under bank line and term loan.....	--	--	1,377
Repayments under bank line and term loan.....	--	--	(800)
	-----	-----	-----
Net cash provided by financing activities.....	714	1,338	2,191
Effect of exchange rate changes on cash and cash equivalents.....	--	23	6
	-----	-----	-----
Net decrease in cash and cash equivalents.....	(5,716)	(2,740)	(4,492)
Cash and cash equivalents at beginning of period.....	22,126	16,410	13,670
	-----	-----	-----
Cash and cash equivalents at end of period.....	\$16,410	\$13,670	\$ 9,178
	=====	=====	=====
Supplemental disclosure of cash flow information:			
Interest paid during the period.....	\$ 21	\$ --	\$ 80
Income taxes paid during the period.....	\$ 285	\$ 323	\$ 146
	=====	=====	=====

The accompanying notes are an integral part of these consolidated financial statements.

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NOTE 1: ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Harmonic Inc. (the "Company") designs, manufactures and markets digital and fiber optic systems for delivering video, voice and data services over cable, satellite and wireless networks. Our advanced solutions enable cable television and other network operators to provide a range of broadcast and interactive broadband services that include high-speed Internet access, telephony and video on demand. We offer a broad range of fiber optic transmission and digital headend products for hybrid fiber coax, satellite and wireless networks, and our acquisition of New Media Communication, Ltd. in January 1998 has allowed us to develop and expand our product offerings to include high-speed data delivery software and hardware.

Reincorporation and Reverse Stock Split. The Company originally incorporated in California in June 1988. In May 1995, the Company reincorporated in Delaware. In conjunction with the reincorporation, all outstanding shares of the predecessor California company were exchanged into common stock of the Delaware company in a one-for-three reverse stock split.

Basis of Presentation. The consolidated financial statements of the Company include the financial statements of the Company and its wholly-owned subsidiaries. All intercompany accounts and balances have been eliminated. The Company's fiscal quarters end on the Friday nearest the calendar quarter end.

Use of Estimates. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ from those estimates.

Cash Equivalents. The Company considers all highly liquid investments purchased with an original maturity date of three months or less at the date of purchase to be cash equivalents and are stated at amounts that approximate fair value, based on quoted market prices. The Company's investments are classified as held-to-maturity.

Fair Value of Financial Instruments. The carrying value of the Company's financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximate fair value due to their short maturities.

Revenue Recognition. Revenue is generally recognized upon shipment of product. The Company does not provide rights of return to end users or distributors. A provision for the estimated cost of warranty is recorded at the time revenue is recognized.

Inventories. Inventories are stated at the lower of cost, using the weighted average method, or market.

Property and Equipment. Property and equipment are recorded at cost. Depreciation and amortization are computed using the straight-line method based upon the shorter of the estimated useful lives of the assets, which range from two to ten years, or the lease term of the respective assets, if applicable. Depreciation and amortization expense related to equipment and improvements for the years ended December 31, 1998 and 1997 was \$3,979,000 and \$3,441,000, respectively.

Intangibles and Other Assets. Goodwill acquired in connection with the acquisition of businesses is included in "Intangibles and other assets." Amortization is provided on a straight-line basis over the estimated useful life of five years. See Notes 2 and 4.

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Long-Lived Assets. The Company records impairment losses on long-lived assets used in operations, such as equipment and improvements, and intangible assets when indicators of impairment are present and the undiscounted cash flows estimated to be generated by those assets are less than the carrying amounts of the assets.

Concentrations of Credit Risk. Financial instruments which subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable. Cash and cash equivalents are maintained with high quality financial institutions and are invested in short-term, highly liquid investment grade obligations of government and commercial issuers, in accordance with the Company's investment policy. The investment policy limits the amount of credit exposure to any one financial institution or commercial issuer. The Company's accounts receivable are derived from sales to cable television and other network operators and distributors as discussed in Note 12. The Company performs ongoing credit evaluations of its customers and generally does not require collateral. The Company provides for expected losses but to date has not experienced any material losses. At December 31, 1998, receivables from three customers represented 24%, 15%, and 14%, respectively. At December 31, 1997, receivables from one customer represented 25% of accounts receivable.

Currency Translation. The Company's Israeli operations' functional currency is the U.S. dollar. All other foreign subsidiaries use the respective local currency as the functional currency. When the local currency is the functional currency gains and losses from translation are included in stockholders' equity. Realized gains and losses resulting from foreign currency transactions have not been material to the consolidated statements of operations for the years ended December 31, 1998, 1997, and 1996.

Income Taxes. Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the tax bases of assets and liabilities and their financial statement reported amounts under the provisions of Statement of Financial Accounting Standards No. 109 ("SFAS 109"), which has been applied for all periods presented.

Accounting for Stock-Based Compensation. The Company's stock-based compensation plans are accounted for in accordance with Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees." In January 1996, the Company adopted the disclosure requirements of Statement of Financial Accounting Standards 123 ("SFAS 123").

Comprehensive Income. Effective January 1, 1998, the Company adopted Statement of Financial Accounting Standards No. 130, "Reporting Comprehensive Income" ("SFAS 130"). SFAS 130 requires that all items recognized under accounting standards as components of comprehensive income be reported in an annual financial statement that is displayed with the same prominence as other annual financial statements. The Company's comprehensive income has been included in the Consolidated Statement of Stockholders' Equity for all periods presented.

Accounting for Derivatives and Hedging Activities. In June 1998, the Financial Accounting Standards Board issued Statement No. 133 "Accounting for Derivative Instruments and Hedging Activities" ("SFAS 133"). SFAS 133 requires companies to record derivatives on the balance sheet as assets or liabilities, measured at fair value. Gains or losses resulting from changes in the values of those derivatives will be reported in the statement of operations or as a deferred item, depending on the use of the derivatives and whether they qualify for hedge accounting. The Company does not expect SFAS 133 to have an impact upon the Company's consolidated financial statements, as the Company does not engage in hedging activities.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Reclassification. Certain amounts in prior years' financial statements and related notes have been reclassified to conform to the 1998 presentation. These reclassifications are not material.

NOTE 2: ACQUISITION OF NEW MEDIA COMMUNICATION, LTD.

On January 5, 1998, the Company acquired New Media Communication, Ltd. ("NMC"), a privately held supplier of broadband, high-speed data delivery software and hardware, in exchange for the issuance of 1,037,911 shares of Harmonic Common Stock and the assumption of all outstanding NMC stock options. The acquisition was accounted for using the purchase method of accounting. Accordingly, the results of operations of NMC have been included in the consolidated financial statements of the Company from the date of acquisition. The purchase price of approximately \$17.6 million was allocated to the acquired assets, in-process technology and goodwill. A one-time charge of \$14.0 million

was recorded in the first quarter of 1998 for in-process technology acquired. Goodwill of approximately \$1.5 million is being amortized on a straight-line basis over the estimated useful life of five years. NMC has been a development stage company since its founding in 1996 and its revenues through 1998 were not material in relation to those of the Company.

The following table sets forth the pro-forma net sales, net income and net income per share of the Company for the year ended December 31, 1997, giving effect to the acquisition of NMC as if it had occurred as of the beginning of the period presented:

	PRO FORMA (UNAUDITED) ----- 1997 ----- (IN THOUSANDS, EXCEPT PER SHARE DATA)
Net sales.....	\$75,086
Net income.....	\$ 1,903
Net income per share:	
Basic.....	\$ 0.17
Diluted.....	\$ 0.15
Weighted average shares:	
Basic.....	11,383
Diluted.....	12,561

NOTE 3: CASH AND CASH EQUIVALENTS

At December 31, 1998 and 1997, the Company had the following amounts in cash and cash equivalents, with original maturity dates of three months or less at the date of purchase. Realized gains and losses for the years ended December 31, 1998 and 1997 and the difference between gross amortized cost and estimated fair value at December 31, 1998 and 1997 were immaterial.

	DECEMBER 31, ----- 1997            1998 ----- (IN THOUSANDS)	
Commercial paper.....	\$ 7,956	\$2,154
Cash and money market accounts.....	5,714	7,024
	-----	-----
Total cash and cash equivalents.....	\$13,670	\$9,178
	=====	=====

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

NOTE 4: BALANCE SHEET DETAILS

	DECEMBER 31, ----- 1997            1998 ----- (IN THOUSANDS)	
Accounts receivable:		
Gross accounts receivable.....	\$17,208	\$ 18,646
Less: allowance for doubtful accounts.....	(750)	(1,000)
	-----	-----



	\$16,458	\$ 17,646
	=====	=====
Inventories:		
Raw materials.....	\$ 4,356	\$ 3,747
Work-in-process.....	3,127	4,557
Finished goods.....	7,991	14,081
	-----	-----
	\$15,474	\$ 22,385
	=====	=====
Property and equipment:		
Furniture and fixtures.....	\$ 1,585	\$ 2,051
Machinery and equipment.....	15,692	19,854
Leasehold improvements.....	2,779	2,779
	-----	-----
	20,056	24,684
Less: accumulated depreciation and amortization.....	(9,979)	(13,958)
	-----	-----
	\$10,077	\$ 10,726
	=====	=====
Intangibles and other assets:		
Other assets.....	\$ 134	\$ 98
Goodwill.....	--	1,520
	-----	-----
	134	1,618
Less: accumulated amortization.....	--	(304)
	-----	-----
	\$ 134	\$ 1,314
	=====	=====
Accrued liabilities:		
Accrued compensation.....	\$ 1,837	\$ 3,655
Customer deposits.....	101	2,234
Deferred revenue.....	402	1,466
Accrued warranties.....	626	575
Other.....	1,930	2,425
	-----	-----
	\$ 4,896	\$ 10,355
	=====	=====

NOTE 5: NET INCOME (LOSS) PER SHARE

During the quarter ended December 31, 1997, the Company adopted Statement of Financial Accounting Standards No. 128, "Earnings Per Share" ("SFAS 128"). SFAS 128 requires presentation of both Basic EPS and Diluted EPS on the face of the statement of operations. Basic EPS, which replaces primary EPS, is computed by dividing net income available to common stockholders (numerator) by the weighted average number of common shares outstanding (denominator) during the period. Unlike the computation of primary EPS, Basic EPS excludes the dilutive effect of stock options and warrants. Diluted EPS replaces fully diluted EPS and gives effect to all dilutive potential common shares outstanding during a period. In computing Diluted EPS, the

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

average price for the period is used in determining the number of shares assumed to be purchased from exercise of stock options and warrants rather than the higher of the average or ending price as used in the computation of fully diluted EPS.

Following is a reconciliation of the numerators and denominators of the Basic and Diluted EPS computations:

	1996	1997	1998
	-----	-----	-----
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
Net income (loss) (numerator).....	\$ 5,918	\$ 4,929	\$ (21,453)
	=====	=====	=====
Shares calculation (denominator):			
Average shares outstanding -- basic.....	10,106	10,345	11,622

Effect of Dilutive Securities:

Potential Common Stock relating to stock options and warrants.....	1,368	1,178	--
	-----	-----	-----
Average shares outstanding -- diluted.....	11,474	11,523	11,622
	=====	=====	=====
Net income (loss) per share -- basic.....	\$ 0.59	\$ 0.48	\$ (1.85)
	=====	=====	=====
Net income (loss) per share -- diluted.....	\$ 0.52	\$ 0.43	\$ (1.85)
	=====	=====	=====

Options and warrants to purchase 2,944,118, 514,150 and 79,750 shares of Common Stock were outstanding during 1998, 1997 and 1996, respectively, but were not included in the computation of diluted EPS because either the option's exercise price was greater than the average market price of the common shares or inclusion of such options would have been antidilutive. The price ranges of these options and warrants were from \$0.30 to \$22.75 per share for 1998, \$16.50 to \$22.75 per share for 1997 and \$16.88 to \$22.75 per share for 1996.

NOTE 6: LINE OF CREDIT

During 1998, the Company had a bank line of credit facility (the "line"), providing for borrowings of up to \$12,000,000. The line was available until December 1998. As discussed in Note 14, the Company renegotiated its bank line of credit facility in the fourth quarter of 1998 and finalized the amended and restated facility in March 1999. The line contained certain financial covenants and interest on borrowings was at the bank's prime rate or LIBOR plus 2%. The Company has guaranteed certain borrowings of its subsidiaries totaling \$0.9 million with letters of credit and has total letters of credit issued under the line of \$2.7 million, which expire at various dates throughout fiscal year 1999. There were no outstanding borrowings at December 31, 1998 and 1997.

NOTE 7: LONG-TERM DEBT

During 1998, the Company had an equipment term loan (the "term loan") facility, providing for borrowings of up to \$3,000,000 on a secured basis. The outstanding principal balance of the term loan on December 31, 1998 is payable in 36 monthly installments beginning January 1999. As of December 31, 1998, borrowings of \$577,000 were outstanding under the term loan. Interest on borrowings is at the bank's prime rate plus 0.5%, payable monthly. Aggregate principal payments required under the term loan are \$177,000, \$191,000, and \$209,000 for the years ending December 31, 1999, 2000, and 2001, respectively. The term loan was available until December 1998. As discussed in Note 14, the Company renegotiated its term loan facility in the fourth quarter of 1998 and finalized the amended and restated facility in March 1999.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Long-term debt consists of the following:

	DECEMBER 31,	
	1997	1998
	-----	-----
	(IN THOUSANDS)	
Equipment term loan.....	\$ --	\$ 577
Less: current portion.....	--	(177)
	-----	-----
	\$ --	\$ 400
	=====	=====

NOTE 8: CAPITAL STOCK

Initial Public Offering. In May 1995, the Company completed its initial public offering ("IPO") of 2,600,000 shares of Common Stock, 600,000 of which were sold by existing stockholders, at a price of \$13.50 per share. Net proceeds to the Company were approximately \$24.2 million, after underwriter commissions

and associated costs. Upon the closing of the IPO, all outstanding shares of Mandatorily Redeemable Convertible Preferred Stock automatically converted into 7,094,748 shares of Common Stock. Also effective with the closing of the IPO, the Company was authorized to issue 5,000,000 shares of undesignated Preferred Stock, of which none were issued or outstanding at December 31, 1998 and 1997.

Common Stock Warrants. In June 1994, the Company entered into a distribution agreement, in connection with which it issued a warrant to purchase up to 798,748 shares of Common Stock at \$5.55 per share. The warrant had a fair value of \$200,000, which was charged to results of operations in the second quarter of 1994. The warrant will become exercisable in June 1999 and expire at the earlier of six years from the date of issuance or the closing of a significant acquisition transaction, as defined in the warrant. The Company has reserved 798,748 shares of Common Stock for issuance upon exercise of this warrant.

In 1993, the Company issued a warrant to purchase up to 22,222 shares of the Company's Common Stock at an exercise price of \$4.50 per share in conjunction with an equipment lease line facility. The fair value of the warrant was nominal, and the warrant expires at the earlier of seven years from the date of issuance or the merger or sale of the Company meeting certain criteria. The Company has reserved 22,222 shares of Common Stock for issuance upon exercise of this warrant.

NOTE 9: BENEFIT AND COMPENSATION PLANS

Stock Option Plans. In 1988, the Company adopted an incentive and non-statutory stock option plan (the "1988 Plan") for which 1,125,917 shares have been reserved for issuance. Following adoption of the 1995 Stock Plan (the "1995 Plan") at the effectiveness of the Company's IPO, no further grants have been, or will be, made under the 1988 Plan. Options granted under the 1988 Plan and the 1995 Plan are for periods not to exceed ten years. Exercise prices of incentive stock option grants under both plans must be at least 100% of the fair market value of the stock at the date of grant and for nonstatutory stock options must be at least 85% of the fair market value of the stock at the date of grant. Under both plans, the options generally vest 25% at one year from date of grant, and an additional 1/48th per month thereafter. The Company has reserved 1,620,000 shares of Common Stock for issuance under the 1995 Plan. Upon the closing of the acquisition of New Media Communication, Ltd. ("NMC") in January 1998, the 1997 Non-Statutory Option Plan (the "1997 Plan") became effective. The Company assumed all outstanding NMC options and issued new options at the closing totaling 400,000 shares. No further grants have been, or will be, made under

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

the 1997 Plan. Options granted under the 1997 Plan were at fair market value and for periods not to exceed ten years with vesting generally under the same terms as the 1988 and 1995 plans.

Director Option Plan. Effective upon the IPO, the Company adopted the 1995 Director Option Plan (the "Director Plan") and reserved 50,000 shares of Common Stock for issuance thereunder. The Director Plan provides for the grant of nonstatutory stock options to certain nonemployee directors of the Company pursuant to an automatic, nondiscretionary grant mechanism.

The following table summarizes activities under the Plans:

	SHARES AVAILABLE FOR GRANT	STOCK OPTIONS OUTSTANDING	WEIGHTED AVERAGE EXERCISE PRICE
	-----	-----	-----
	(IN THOUSANDS, EXCEPT EXERCISE PRICE)		
Balance at December 31, 1995.....	442	1,153	\$ 3.67
Options granted.....	(344)	344	12.72
Options exercised.....	--	(208)	0.98
Options canceled.....	7	(48)	5.75
	-----	-----	-----
Balance at December 31, 1996.....	105	1,241	6.56

Shares authorized.....	480	--	--
Options granted.....	(504)	504	18.08
Options exercised.....	--	(185)	3.31
Options canceled.....	154	(177)	14.26
	-----	-----	-----
Balance at December 31, 1997.....	235	1,383	10.22
Shares authorized.....	975	--	--
Options granted.....	(1,064)	1,064	12.48
Options exercised.....	--	(187)	4.21
Options canceled.....	120	(137)	14.56
	-----	-----	-----
Balance at December 31, 1998.....	266	2,123	\$11.60
	=====	=====	=====

The following table summarizes information regarding stock options outstanding at December 31, 1998:

RANGE OF EXERCISE PRICES	STOCK OPTIONS OUTSTANDING			STOCK OPTIONS EXERCISABLE	
	NUMBER OUTSTANDING AT DECEMBER 31, 1998	WEIGHTED-AVERAGE REMAINING CONTRACTUAL LIFE (YEARS)	WEIGHTED-AVERAGE EXERCISE PRICE	NUMBER EXERCISABLE AT DECEMBER 31, 1998	WEIGHTED-AVERAGE EXERCISE PRICE
	(IN THOUSANDS, EXCEPT EXERCISE PRICE AND LIFE)				
\$ 0.30 - 1.80.....	345	3.8	\$ 0.72	345	\$ 0.72
2.25 - 4.65.....	125	8.1	3.36	118	3.35
7.20 - 13.75.....	788	8.2	11.40	284	11.16
14.13 - 22.75.....	865	8.9	17.30	181	18.55
	-----	---	-----	---	-----
	2,123	7.7	\$11.60	928	\$ 7.73
	=====	===	=====	===	=====

The weighted-average fair value of options granted in 1998 was \$13.58. The weighted-average fair value of options granted in 1997 and 1996 was \$18.28 and \$12.95, respectively.

Employee Stock Purchase Plan. Effective upon the IPO, the Company adopted the 1995 Employee Stock Purchase Plan (the "Purchase Plan") for which 400,000 shares have been reserved for issuance. The Purchase Plan enables employees to purchase shares at 85% of the fair market

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

value of the Common Stock at the beginning or end of each six month purchase period. The Purchase Plan is intended to qualify as an "employee stock purchase plan" under Section 423 of the Internal Revenue Code. 87,238, 68,271 and 48,977 shares were issued under the Purchase Plan during 1998, 1997 and 1996, respectively.

Fair Value Disclosures. The Company accounts for its stock-based compensation plans in accordance with the provisions of Accounting Principles Board Opinion No. 25. If compensation cost for the Company's stock-based compensation plans had been determined based on the fair value method at the grant dates, as prescribed in SFAS 123, the Company's net income (loss) and net income (loss) per share would have been as follows:

	1996	1997	1998
	-----	-----	-----
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
Net income (loss):			
As reported.....	\$5,918	\$4,929	\$(21,453)
Pro forma.....	4,474	3,209	(26,457)
Basic net income (loss) per share:			
As reported.....	\$ 0.59	\$ 0.48	\$( 1.85)
Pro forma.....	0.44	0.31	(2.28)
Diluted net income (loss) per share:			
As reported.....	\$ 0.52	\$ 0.43	\$( 1.85)
Pro forma.....	0.39	0.28	(2.28)

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following weighted average assumptions:

	EMPLOYEE STOCK OPTIONS			EMPLOYEE STOCK PURCHASE PLAN		
	1996	1997	1998	1996	1997	1998
Dividend yield.....	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Volatility.....	47.5%	55%	65%	47.5%	55%	65%
Risk-free interest rate.....	5.2-6.5%	5.6-6.7%	4.4-5.6%	5.7%	5.1-6.3%	4.6-5.5%
Expected life (years).....	4	4	4	2	2	2

Retirement/Savings Plan. The Company has a retirement/savings plan which qualifies as a thrift plan under Section 401(k) of the Internal Revenue Code. This plan allows participants to contribute up to 20% of total compensation, subject to applicable Internal Revenue Service limitations. Effective April 1, 1997, the Company began to make discretionary contributions to the plan of \$0.25 per dollar contributed by eligible participants up to a maximum contribution per participant of \$750 per year.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

NOTE 10: INCOME TAXES

The provision for income taxes consists of the following:

	DECEMBER 31,		
	1996	1997	1998
	(IN THOUSANDS)		
Current:			
Federal.....	\$246	\$168	\$ --
Foreign.....	41	90	--
State.....	24	1	--
	----	----	----
	\$311	\$259	\$ --
	=====	=====	=====

The income tax provision reconciles to the provision at the federal statutory rate as follows:

	DECEMBER 31,		
	1996	1997	1998
	(IN THOUSANDS)		
Provision at statutory rate.....	\$ 2,118	\$ 1,764	\$ (7,294)
Differential in rates on foreign earnings.....	--	(111)	774
State taxes, net of federal benefit.....	16	1	--
Foreign sales corporation benefit.....	--	(176)	--
Acquired in-process technology and non-deductible goodwill.....	--	--	4,863
Utilization of net operating loss carryovers.....	(2,490)	(1,661)	--
Future benefits not currently recognized.....	429	364	2,116
Alternative minimum tax.....	162	51	--
Other.....	76	27	(459)
	-----	-----	-----
	\$ 311	\$ 259	\$ --

Deferred tax assets comprise the following:

	DECEMBER 31,		
	1996	1997	1998
	(IN THOUSANDS)		
Net operating loss carryovers.....	\$ 1,964	\$ 303	\$ 845
Research and development credit carryovers.....	2,112	2,452	3,285
Capitalized research and development costs.....	254	234	71
Reserves not currently deductible.....	1,187	1,657	2,814
Other.....	12	96	419
	-----	-----	-----
Total deferred tax assets.....	5,529	4,742	7,434
Valuation allowance.....	(5,529)	(4,742)	(7,434)
	-----	-----	-----
Net deferred assets.....	\$ --	\$ --	\$ --
	=====	=====	=====

The deferred tax assets valuation allowance at December 31, 1998, 1997 and 1996 is attributed to federal and state deferred tax assets. Management believes that sufficient uncertainty exists regarding the realizability of these items such that a full valuation allowance has been recorded.

At December 31, 1998, the Company had approximately \$1,968,000 of net operating loss carryovers for federal tax reporting purposes available to offset future taxable income; such carryovers

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

will expire in the years ending 2009 through 2019. The federal net operating loss carryovers do not include approximately \$4,887,000 resulting from disqualifying dispositions or exercises of non-incentive stock options, the tax benefit of which, when realized, will be accounted for as an addition to capital in excess of par value, rather than as a reduction of the provision for income taxes. At December 31, 1998, the Company also had approximately \$2,175,000, and \$1,110,000, of research and development credit carryovers for federal and state tax reporting purposes, respectively. The federal research and development credit carryovers will expire in the years ending 2004 through 2019. The state research and development carryovers will be carried forward indefinitely, until utilized.

The amounts of and the benefit from net operating losses and tax credits that can be carried forward may be limited in the event of a cumulative stock ownership change of greater than 50% over a three year period.

NOTE 11: RESEARCH AND DEVELOPMENT GRANTS

BIRD. In accordance with separate agreements signed with the Israel - U.S. Binational Industrial Research and Development Foundation ("BIRD") in December 1994 and December 1997, the Company obtained grants for research and development projects amounting to 50% of the actual expenditures incurred on each of the two projects subject to a maximum of \$560,000 and \$845,000, respectively. The Company earned the maximum of \$560,000 under the first grant, which was offset against research and development expenses from 1995 through 1997. Under the second grant, the Company earned approximately \$81,000 in 1998, which was also offset against research and development expenses for the same period. The Company is not obligated to repay the grants regardless of the outcome of its development efforts; however, it is obligated to pay the BIRD royalties at the rate of 2.5% - 5% of sales of any products or development resulting from such research, but not in excess of 150% of each grant. During 1998, approximately \$175,000 of royalty expense was incurred.

Chief Scientist. An agreement was signed in May 1998 with the Israeli Chief Scientist Office ("Chief Scientist") in which the Company obtained a grant for a research and development project amounting to 50% of the actual expenditures

incurred, subject to a maximum of 1,113,000 Israeli Shekels which translated at the December 31, 1998 exchange rate approximates \$265,000. The Company earned \$265,000 during 1998, which was offset against research and development expense for the same period. The Company is not obligated to repay the grants regardless of the outcome of its development efforts; however, it is obligated to pay the Chief Scientist royalties at the rate of 3% - 5% of sales of any products or development resulting from such research, but not in excess of 100% of the grant. During 1998, royalty expenses incurred were not significant.

NOTE 12: GEOGRAPHIC INFORMATION AND SIGNIFICANT CUSTOMERS

The Company operates in one industry segment and markets its products worldwide through its own direct sales force and through systems integrators and distributors. The Company has a manufacturing facility located in the U.S., international sales and support centers in Europe and Asia, and its New Media Communication, Ltd. subsidiary and a research and development facility in Israel.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Geographic information consists of the following:

	YEAR ENDED DECEMBER 31,		
	1996	1997	1998
	(IN THOUSANDS)		
Net sales:			
United States.....	\$26,122	\$30,651	\$47,422
Canada.....	9,119	12,806	7,208
China.....	1,139	8,254	11,647
United Kingdom.....	9,323	5,530	3,511
Other foreign countries.....	15,191	17,201	14,069
	-----	-----	-----
Total.....	\$60,894	74,442	\$83,857
	=====	=====	=====
Long-lived assets:			
United States.....	\$ 8,076	\$ 8,617	\$10,384
Israel.....	675	1,373	1,501
Other foreign countries.....	--	87	57
	-----	-----	-----
Total.....	\$ 8,751	\$10,077	\$11,942
	=====	=====	=====

The Company sells to a significant number of its end users through distributors. In 1998 sales to one domestic customer and one foreign distributor represented 17% and 11% of total net sales, respectively. In 1997, sales to one distributor represented 17% of total net sales. In 1996, sales to three distributors represented 15%, 15% and 13% of total net sales, respectively.

NOTE 13: COMMITMENTS AND CONTINGENCIES

Commitments. The Company leases its facilities under noncancelable operating leases which expire at various dates through 2006. Total rent expense related to these operating leases were \$1,602,000, \$1,413,000, and \$828,000, for 1998, 1997 and 1996, respectively. Future minimum lease payments under noncancelable operating leases at December 31, 1998, were as follows:

	(IN THOUSANDS)
1999.....	\$ 1,479
2000.....	1,511
2001.....	1,415
2002.....	1,324
2003.....	1,352
Thereafter.....	3,848

-----  
\$10,929  
=====

The Company has subleased a portion of its headquarters through December 1999. Under the terms of the sublease, the sublessee is required to make payments aggregating \$399,000 for 1999.

Contingencies. The Company is a party to certain litigation matters and claims which are normal in the course of its operations and, while the results of litigation and claims cannot be predicted with certainty, management believes that the final outcome of such matters will not have a materially adverse effect on the Company's consolidated financial position or results of operations.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

NOTE 14: SUBSEQUENT EVENTS

Amendment of Line of Credit. On March 5, 1999, the Company's amended and restated bank line of credit facility (the "line") was finalized, providing for borrowings of up to \$10,000,000 with a \$3,000,000 equipment term loan sub-limit (the "term loan"). The line contains certain financial covenants and is available until March 2000. Borrowings pursuant to the line bear interest at the bank's prime rate plus 0.5% (prime rate plus 1.0% under the term loan) and are payable monthly. The line is secured by substantially all of the assets of the Company. The outstanding principal balance of the term loan on March 5, 2000 will be payable in 36 monthly installments beginning April 2000.

Amendment of Common Stock Warrant. In March 1999, the Common Stock warrant issued in connection with the 1994 distribution agreement was amended whereby the warrant shall become exercisable immediately prior to the effectiveness of a registration statement of the Company's Common Stock, subject to certain conditions. In consideration of the acceleration of exercisability of the warrant, the warrant holder agreed to reduce the number of shares issuable under the warrant from 798,748 shares to 720,000 shares.

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[Photographs of Harmonic's Network management system, lightwave and digital headend products, hub and node products, and a TRANsend digital platform.]

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YOU SHOULD RELY ONLY ON THE INFORMATION CONTAINED IN THIS PROSPECTUS. WE HAVE NOT AUTHORIZED ANYONE TO PROVIDE YOU WITH INFORMATION DIFFERENT FROM THAT CONTAINED IN THIS PROSPECTUS. WE ARE OFFERING TO SELL, AND SEEKING OFFERS TO BUY SHARES OF HARMONIC COMMON STOCK ONLY IN JURISDICTIONS WHERE OFFERS AND SALES ARE PERMITTED. THE INFORMATION CONTAINED IN THIS PROSPECTUS IS ACCURATE ONLY AS OF THE DATE OF THIS PROSPECTUS, REGARDLESS OF THE TIME OF DELIVERY OF THIS PROSPECTUS OR OF ANY SALE OF THE HARMONIC COMMON STOCK.

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2,800,000 Shares  
LOGO  
Common Stock

-----  
WARBURG DILLON READ LLC  
CIBC WORLD MARKETS  
SG COWEN  
SOUNDVIEW TECHNOLOGY GROUP  
Representatives of the Underwriters  
, 1999

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The fees and expenses incurred by Harmonic in connection with the offering are payable by Harmonic and, other than filing fees, are estimated as follows:

Securities and Exchange Commission registration fee.....	\$ 21,932
NASD filing fee.....	8,389
NASDAQ filing fee.....	17,500
Legal fees and expenses.....	200,000
Accounting fees and expenses.....	60,000
Blue Sky qualification fees and expenses.....	2,500
Transfer agent and registrar fees.....	10,000
Miscellaneous fees and expenses.....	154,679
	-----
Total.....	\$475,000
	=====

ITEM 15. INDEMNIFICATION OF OFFICERS AND DIRECTORS

Section 145 of the Delaware General Corporation law ("DGCL") empowers a Delaware corporation to indemnify any persons who are, or are threatened to be made, parties to any threatened, pending or completed legal action, suit or proceedings, whether civil, criminal, administrative or investigative (other than action by or in the right of such corporation), by reason of the fact that such person was an officer or director of such corporation, or is or was serving

at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such officer or director acted in good faith and in a manner he reasonably believed to be in or not opposed to the corporation's best interest, and, for criminal proceedings, had no reasonable cause to believe his conduct was illegal. A Delaware corporation may indemnify officers and directors in an action by or in the right of the corporation under the same conditions, except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation in the performance of his duty. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him against the expenses which such officer or director actually and reasonably incurred.

In accordance with the DGCL, the Harmonic's Restated Certificate of Incorporation ("Certificate"), contains a provision to limit the personal liability of the directors of the Registrant for violations of their fiduciary duty. This provision eliminates each director's liability to the Registrant or its stockholders for monetary damages except (i) for any breach of the director's duty of loyalty to the Registrant or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL providing for liability of directors for unlawful payment of dividends or unlawful stock purchases or redemptions, or (iv) for any transaction from which a director derived an improper personal benefit. The effect of this provision is to eliminate the personal liability of directors for monetary damages for actions involving a breach of their fiduciary duty of care, including any such actions involving gross negligence.

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Article VII of the Harmonic's Certificate and Article VI, Section 6.1 of the Harmonic's Bylaws provide for indemnification of the officers and directors of the Registrant to the fullest extent permitted by applicable law.

The Registrant has entered into indemnification agreements with each director and executive officer which provide indemnification to such directors and executive officers under certain circumstances for acts or omissions which may not be covered by directors' and officers' liability insurance.

ITEM 16. EXHIBITS

The following exhibits are filed with this Registration Statement:

EXHIBIT NUMBER	DESCRIPTION
1.1	Form of Underwriting Agreement.
5.1	Opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation.
23.1	Consent of Wilson Sonsini Goodrich & Rosati, Professional Corporation (included in Exhibit 5.1).
23.2	Consent of PricewaterhouseCoopers LLP.
24.1*	Power of Attorney.

\* Previously filed.

ITEM 17. UNDERTAKINGS

The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement: (i) to include any prospectus required by section 10(a)(3) of the Securities Act; (ii) to reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) (Section 230.424(b) of this chapter) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and (iii) to include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement; provided, however, that (i) and (ii) do not apply if the Registration Statement is on Form S-3, Form S-8 or Form F-3, and the information required to be included in a post-effective amendment by (i) and (ii) is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the

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securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described in Item 15 above, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against liabilities (other than the payment of the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this

Registration Statement as of the time it was declared effective.

(2) For the purpose of determining liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Sunnyvale, State of California on this 15th day of April, 1999.

Harmonic Inc.

By: /s/ ANTHONY J. LEY

-----  
Anthony J. Ley  
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 1 to the Registration Statement has been signed by the following persons in the capacities indicated on April 15, 1999.

SIGNATURE -----	TITLE -----
/s/ ANTHONY J. LEY ----- Anthony J. Ley	President, Chief Executive Officer and Chairman of the Board (Principal Executive Officer and Chairman of the Board)
/s/ ROBIN N. DICKSON ----- Robin N. Dickson	Chief Financial Officer, (Principal Financial and Accounting Officer)
/s/ MOSHE NAZARATHY * ----- Moshe Nazarathy	Director
/s/ E. FLOYD KVAMME * ----- E. Floyd Kvamme	Director
/s/ DAVID A. LANE * ----- David A. Lane	Director
/s/ BARRY D. LEMIEUX * ----- Barry D. Lemieux	Director
/s/ MICHEL L. VAILLAUD * ----- Michel L. Vaillaud	Director

\* By: /s/ ROBIN N. DICKSON

-----  
Robin N. Dickson  
Attorney-In-Fact

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## EXHIBIT INDEX

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23.2	Consent of PricewaterhouseCoopers LLP.
24.1*	Power of Attorney.

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\* Previously filed.

## UNDERWRITING AGREEMENT

April \_\_, 1999

WARBURG DILLON READ LLC  
 CIBC Oppenheimer Corporation,  
 SG Cowen Securities Corporation  
 SoundView Technology Group  
 as Managing Underwriters  
 c/o Warburg Dillon Read LLC  
 299 Park Avenue  
 New York, New York 10171-0026

Ladies and Gentlemen:

Harmonic Inc., a Delaware corporation (the "Company"), proposes to issue and sell, and the persons named in Schedule B annexed hereto (the "Selling Stockholders") propose to sell, to the underwriters named in Schedule A annexed hereto (the "Underwriters") an aggregate of 2,800,000 shares (the "Firm Shares") of Common Stock, \$0.001 par value (the "Common Stock"), of the Company, of which 2,000,000 shares are to be issued and sold by the Company and an aggregate of 800,000 shares are to be sold by the Selling Stockholders in the respective amounts set forth under the caption "Firm Shares" in Schedule B annexed hereto. In addition, solely for the purpose of covering over-allotments, the Company proposes to grant to the Underwriters the option to purchase from the Company up to an additional 420,000 shares of Common Stock. The Firm Shares and the Additional Shares are hereinafter collectively sometimes referred to as the "Shares." The Shares are described in the Prospectus which is referred to below.

The Company has filed, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively called the "Act"), with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-3 (File No. 333-74599), including a prospectus, relating to the Shares, which incorporates by reference documents which the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively called the "Exchange Act"). The Company has furnished to you, for use by the Underwriters and by dealers, copies of one or more preliminary prospectuses and the documents incorporated by reference therein (each thereof, including the documents incorporated therein by reference, being herein called a "Preliminary Prospectus") relating to the Shares. Except where the context otherwise requires, the registration statement, as amended when it becomes effective, including all documents filed as a part thereof or incorporated by reference therein, and including any information contained in a prospectus subsequently filed with the Commission pursuant to Rule 424(b) under the Act and deemed to be part of the registration statement at the time of effectiveness pursuant to Rule 430(A) under the Act and also including any registration statement filed pursuant to Rule 462(b) under the Act, is herein called the Registration Statement, and the

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prospectus, including all documents incorporated therein by reference, in the form filed by the Company with the Commission pursuant to Rule 424(b) under the Act on or before the second business day after the date hereof (or such earlier time as may be required under the Act) or, if no such filing is required, the form of final prospectus included in the Registration Statement at the time it became effective, is herein called the Prospectus.

The Company, the Selling Stockholders and the Underwriters agree as follows:

1. Sale and Purchase. Upon the basis of the warranties and representations and subject to the terms and conditions herein set forth, the Company and each of the Selling Stockholders, severally and not jointly, agree to sell to the respective Underwriters and each of the Underwriters, severally and not jointly, agrees to purchase from the Company and each Selling Stockholder the respective number of Firm Shares (subject to such adjustment as

you may determine to avoid fractional shares) which bears the same proportion to the number of Firm Shares to be sold by the Company or by such Selling Stockholders, as the case may be, as the number of Firm Shares set forth opposite the name of such Underwriter in Schedule A annexed hereto bears to the total number of Firm Shares to be sold by the Company and the Selling Stockholders, in each case at a purchase price of \$[\_\_\_\_] per Share. The Company and each Selling Stockholder is advised by you that the Underwriters intend (i) to make a public offering of their respective portions of the Firm Shares as soon after the effective date of the Registration Statement as in your judgment is advisable and (ii) initially to offer the Firm Shares upon the terms set forth in the Prospectus. You may from time to time increase or decrease the public offering price after the initial public offering to such extent as you may determine.

In addition, the Company hereby grants to the several Underwriters the option to purchase, and upon the basis of the warranties and representations and subject to the terms and conditions herein set forth, the Underwriters shall have the right to purchase, severally and not jointly, from the Company, ratably in accordance with the number of Firm Shares to be purchased by each of them (subject to such adjustment as you shall determine to avoid fractional shares), all or a portion of the Additional Shares as may be necessary to cover over-allotments made in connection with the offering of the Firm Shares, at the same purchase price per share to be paid by the Underwriters to the Company for the Firm Shares. This option may be exercised by you on behalf of the several Underwriters at any time (but not more than once) on or before the thirtieth day following the date hereof, by written notice to the Company. Such notice shall set forth the aggregate number of Additional Shares as to which the option is being exercised, and the date and time when the Additional Shares are to be delivered (such date and time being herein referred to as the additional time of purchase); provided, however, that the additional time of purchase shall not be earlier than the time of purchase (as defined below) nor earlier than the second business day(1) after the date on which the option shall have been exercised nor later than

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(1) As used herein "business day" shall mean a day on which the New York Stock Exchange is open for trading.

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the tenth business day after the date on which the option shall have been exercised. The number of Additional Shares to be sold to each Underwriter shall be the number which bears the same proportion to the aggregate number of Additional Shares being purchased as the number of Firm Shares set forth opposite the name of such Underwriter on Schedule A hereto bears to the total number of Firm Shares (subject, in each case, to such adjustment as you may determine to eliminate fractional shares).

Pursuant to powers of attorney, which shall be satisfactory to counsel for the Underwriters, granted by each Selling Stockholder, Anthony J. Ley and Robin N. Dickson will act as representatives of the Selling Stockholders. The foregoing representatives (the "Representatives of the Selling Stockholders") are authorized, on behalf of each Selling Stockholder, to execute any documents necessary or desirable in connection with the sale of the Shares to be sold hereunder by each Selling Stockholder, to make delivery of the certificates of such Shares, to receive the proceeds of the sale of such Shares, to give receipts for such proceeds, to pay therefrom the expenses to be borne by each Selling Stockholder in connection with the sale and public offering of the Shares, to distribute the balance of such proceeds to each Selling Stockholder in proportion to the number of Shares sold by each Selling Stockholder, to receive notices on behalf of each Selling Stockholder and to take such other action as may be necessary or desirable in connection with the transactions contemplated by this Agreement.

2. Payment and Delivery. Payment of the purchase price for the Firm Shares shall be made to the Company and each of the Selling Stockholders by Federal Funds wire transfer, against delivery of the certificates for the Firm Shares to you through the facilities of the Depository Trust Company (DTC) for the respective accounts of the Underwriters. Such payment and delivery shall be made at 10:00 A.M., New York City time, on April \_\_, 1999 (unless another time shall be agreed to by you, the Company and the Representatives of the Selling

Stockholders or unless postponed in accordance with the provisions of Section 10 hereof). The time at which such payment and delivery are actually made is hereinafter sometimes called the time of purchase. Certificates for the Firm Shares shall be delivered to you in such names and in such denominations as you shall specify no later than the second business day preceding the time of purchase. For the purpose of expediting the checking of the certificates for the Firm Shares by you, the Company and the Selling Stockholders agree to make such certificates available to you for such purpose at least one full business day preceding the time of purchase.

Payment of the purchase price for the Additional Shares shall be made at the additional time of purchase in the same manner and at the same office as the payment for the Firm Shares. Certificates for the Additional Shares shall be delivered to you in such names and in such denominations as you shall specify no later than the second business day preceding the additional time of purchase. For the purpose of expediting the checking of the certificates for the Additional Shares by you, the Company agrees to make such certificates available to you for such purpose at least one full business day preceding the additional time of purchase.

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3. Representations and Warranties of the Company. The Company represents and warrants to each of the Underwriters that:

(a) the Company has not received, and has no notice of, any order of the Commission preventing or suspending the use of any Preliminary Prospectus, or instituting proceedings for that purpose, and each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and when the Registration Statement became effective, the Registration Statement and the Prospectus complied in all material respects with the provisions of the Act, and, as of the time of purchase, the Registration Statement will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and, as of the time of purchase, the Prospectus will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; any statutes, regulations, contracts, legal or governmental proceedings or other documents that are required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement have been so described or filed; provided, however, that the Company makes no warranty or representation with respect to any statement contained in the Registration Statement or the Prospectus in reliance upon and in conformity with information concerning the Underwriters and furnished in writing by or on behalf of any Underwriter through you to the Company expressly for use in the Registration Statement or the Prospectus. The documents incorporated by reference in the Prospectus, at the time they were filed with the Commission, complied in all material respects with the requirements of the Act and the Exchange Act, and at the time of purchase do not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading and the Company has not distributed any offering material in connection with the offering or sale of the Shares other than the Registration Statement, the Preliminary Prospectus, the Prospectus or any other materials, if any, permitted by the Act or the Underwriters;

(b) the information set forth under the caption "Capitalization" in the Prospectus is true and correct as of the date therein indicated. All of the issued and outstanding shares of capital stock including Common Stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable, have been issued in compliance with all federal and state securities laws and were not issued in violation of any preemptive right, resale right, right of first refusal or similar right;

(c) the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with full power and authority to own, lease and operate its properties and conduct its business as described in the Registration Statement;

(d) the Company is duly qualified to do business as a



foreign corporation in good standing in each jurisdiction where the ownership or leasing of its properties or the conduct of its business requires such qualification, except where the failure to so qualify would

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not have a material adverse effect on the business, properties, financial condition or results of operation of the Company and its Subsidiaries (as hereinafter defined) taken as a whole (a "Material Adverse Effect"). The Company has no "significant subsidiaries" (as defined in the Rules and Regulations) other than the subsidiaries listed on Schedule C hereto (collectively, the "Subsidiaries"); the Company directly or indirectly owns 100% of the outstanding capital stock of all of its Subsidiaries; complete and correct copies of the certificates of incorporation and of the bylaws of the Company and the Subsidiaries and all amendments thereto have been delivered or made available to you, and except as set forth in the exhibits to the Registration Statement no changes therein will be made subsequent to the date hereof and prior to the Closing Date or, if later, the Option Closing Date; each Subsidiary has been duly incorporated and is validly existing as a corporation under the laws of the jurisdiction of its incorporation, with full corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement; each Subsidiary is duly qualified to do business as a foreign corporation in each jurisdiction where the ownership or leasing of the properties or the conduct of its business requires such qualification, except where the failure to so qualify would not have a Material Adverse Effect; all of the outstanding shares of capital stock of each of the Subsidiaries have been duly authorized and validly issued, are fully paid and non-assessable and (except as otherwise described in this Section 3(d)) are owned by the Company subject to no security interest, other encumbrance or adverse claims, except the security interests with respect to indebtedness of the Company as disclosed in the Prospectus; no options, warrants or other rights to purchase, agreements or other obligations to issue or other rights to convert any obligation into shares of capital stock or ownership interests in the Subsidiaries are outstanding.

(e) the Company and each of its Subsidiaries are in compliance in all material respects with the laws, orders, rules, regulations and directives issued or administered by each jurisdiction in which they conduct their respective businesses, except where noncompliance could singly or in the aggregate result in a Material Adverse Effect;

(f) neither the Company nor any of its Subsidiaries is in breach of, or in default under (nor has any event occurred which with notice, lapse of time, or both would result in any breach of, or constitute a default under), its respective charter or by-laws or in the performance or observance of any obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, bank loan or credit agreement or other evidence of indebtedness, or any lease, contract or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which any of them or any of their properties is bound, and the execution, delivery and performance of this Agreement, the issuance and sale of the Shares and the consummation of the transactions contemplated hereby will not conflict with, or result in any breach of or constitute a default under (nor constitute any event which with notice, lapse of time, or both would result in any breach of, or constitute a default under), any provisions of the charter or by-laws, of the Company or any of its Subsidiaries or under any provision of any license, indenture, mortgage, deed of trust, bank loan or credit agreement or other evidence of indebtedness, or any lease, contract or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which any of them or their respective properties may be bound or affected, or under any federal, state, local or foreign law, regulation or rule or any decree, judgment or order applicable to the Company or any of its Subsidiaries;

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(g) this Agreement has been duly authorized, executed and delivered by the Company and is a legal, valid and binding agreement of the Company enforceable in accordance with its terms;

(h) the Shares have been duly and validly authorized and,

when issued and delivered against payment therefor as provided herein, will be duly and validly issued and fully paid and non-assessable;

(i) no approval, authorization, consent or order of or filing with any national, state or local governmental or regulatory commission, board, body, authority or agency is required in connection with the issuance and sale of the Shares or the consummation by the Company of the transaction as contemplated hereby other than registration of the Shares under the Act and any necessary qualification under the securities or blue sky laws of the various jurisdictions in which the Shares are being offered by the Underwriters or under the rules and regulations of the National Association of Securities Dealers, Inc. (NASD);

(j) except as disclosed in the Prospectus, no person has the right, contractual or otherwise, to cause the Company to issue to it, or register pursuant to the Act, any shares of capital stock of the Company upon the issue and sale of the Shares to the Underwriters hereunder, nor does any person have preemptive rights, co-sale rights, rights of first refusal or other rights to purchase any of the Shares other than those that have been expressly waived prior to the dates hereof;

(k) PriceWaterhouseCoopers LLP, whose report on the consolidated financial statements of the Company and its Subsidiaries is filed with the Commission as part of the Registration Statement and Prospectus, are independent public accountants as required by the Act;

(l) each of the Company and its Subsidiaries has all necessary licenses, authorizations, consents and approvals and has made all necessary filings required under any federal, state, local or foreign law, regulation or rule, and has obtained all necessary authorizations, consents and approvals from other persons, in order to conduct its respective business; neither the Company nor any of its Subsidiaries is in violation of, or in default under, any such license, authorization, consent or approval or any federal, state, local or foreign law, regulation or rule or any decree, order or judgment applicable to the Company or any of its Subsidiaries the effect of which could have a Material Adverse Effect;

(m) there are no actions, suits, claims, investigations or proceedings pending or, to the knowledge of the Company, threatened to which the Company or any of its Subsidiaries or any of their respective officers is a party or of which any of their respective properties is subject at law or in equity, or before or by any federal, state, local or foreign governmental or regulatory commission, board, body, authority or agency which could result in a judgment, decree or order having a Material Adverse Effect or prevent the consummation of the transaction contemplated hereby;

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(n) the audited financial statements included in the Registration Statement and the Prospectus present fairly the consolidated financial position of the Company and its Subsidiaries as of the dates indicated and the consolidated results of operations and cash flows of the Company and its Subsidiaries for the periods specified; such financial statements have been prepared in conformity with generally accepted accounting principles applied on a consistent basis during the periods involved;

(o) subsequent to the respective dates as of which information is given in the Registration Statement and the Prospectus, there has not been (i) any material adverse change, or any development which, in the Company's reasonable judgment, is likely to cause a material adverse change, in the business, properties or assets described or referred to in the Registration Statement, or the results of operations, condition (financial or otherwise), business or operations of the Company and its Subsidiaries taken as a whole, (ii) any transaction which is material to the Company or its Subsidiaries, except transactions in the ordinary course of business or described in the Registration Statement as it may be amended or supplemented, (iii) any obligation, direct or contingent, which is material to the Company and its Subsidiaries taken as a whole, incurred by the Company or its Subsidiaries, except obligations incurred in the ordinary course of business or described in the Registration Statement as it may be amended or supplemented, (iv) any change in the capital stock or outstanding indebtedness of the Company or its Subsidiaries or (v) any dividend or distribution of any kind declared, paid or

made on the capital stock of the Company. Neither the Company nor its Subsidiaries has any material contingent obligation which is not disclosed in the Registration Statement.

(p) the Company has obtained the agreement of each of the Selling Stockholders and of each of its directors and executive officers and certain of its other stockholders not to sell, offer to sell, contract to sell, hypothecate grant any option to sell or otherwise dispose of, directly or indirectly, any shares of Common Stock or securities convertible into or exchangeable for Common Stock or warrants or other rights to purchase Common Stock for a period of 90 days after the date of the Prospectus;

(q) the Company is not and, after giving effect to the offering and sale of the Shares, will not be an "investment company" or an entity "controlled" by an "investment company," as such terms are defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

4. Representations and Warranties of the Selling Stockholders. Each Selling Stockholder, severally and not jointly, represents and warrants to each Underwriter that:

(a) such Selling Stockholder, at the time of delivery of such Shares, will be, the lawful owner of the number of Shares to be sold by such Selling Stockholder pursuant to this Agreement and, at the time of delivery thereof, will have valid and marketable title to such Shares, and upon delivery of and payment for such Shares (whether at the time of purchase or the additional time of purchase, as the case may be), the Underwriters will acquire valid and marketable title to such Shares free and clear of any claim, lien, encumbrance, security interest, community property right, restriction on transfer or other defect in title;

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(b) such Selling Stockholder, at the time of delivery of such Shares, will have, full legal right, power and capacity, and any approval required by law (other than those imposed by the Act and the securities or blue sky laws of certain jurisdictions), to sell, assign, transfer and deliver such Shares in the manner provided in this Agreement;

(c) this Agreement and the Custody Agreement between ChaseMellon Shareholder Services, as custodian, and the Selling Stockholders (the Custody Agreement) have been duly executed and delivered by such Selling Stockholder and each is a legal, valid and binding agreement of such Selling Stockholder enforceable in accordance with their terms;

(d) when the Registration Statement becomes effective and at all times subsequent thereto through the latest of the time of purchase or the termination of the offering of the Shares, the Registration Statement and Prospectus, and any supplements or amendments thereto as relate to such Selling Stockholder will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading;

(e) such Selling Stockholder has duly and irrevocably authorized the Representatives of the Selling Stockholders, on behalf of such Selling Stockholder, to execute and deliver this Agreement and any other document necessary or desirable in connection with the transactions contemplated thereby and to deliver the Shares to be sold by such Selling Stockholder and receive payment therefor pursuant hereto; and

(f) the sale of such Selling Stockholder's Shares pursuant to this Agreement is not prompted by any information concerning the Company which is not set forth in the Prospectus.

5. Certain Covenants of the Company. The Company hereby agrees:

(a) to furnish such information as may be required and otherwise to cooperate in qualifying the Shares for offering and sale under the securities or blue sky laws of such jurisdictions as you may designate and to maintain such qualifications in effect so long as required for the distribution of the Shares; provided that the Company shall not be required to qualify as a foreign corporation or to consent to the service of process under the laws of

any such jurisdiction (except service of process with respect to the offering and sale of the Shares); and to promptly advise you of the receipt by the Company of any notification with respect to the suspension of the qualification of the Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose;

(b) to make available to the Underwriters in New York City, as soon as practicable after the Registration Statement becomes effective, and thereafter from time to time to furnish to the Underwriters, as many copies of the Prospectus (or of the Prospectus as amended or supplemented if the Company shall have made any amendments or supplements thereto after the effective date of the Registration Statement) as the Underwriters may request for the purposes contemplated by the Act;

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(c) to advise you promptly and (if requested by you) to confirm such advice in writing, (i) when the Registration Statement has become effective and when any post-effective amendment thereto becomes effective and (ii) if Rule 430A under the Act is used, when the Prospectus is filed with the Commission pursuant to Rule 424(b) under the Act (which the Company agrees to file in a timely manner under such Rules);

(d) to advise you promptly, confirming such advice in writing if requested, of any request by the Commission for amendments or supplements to the Registration Statement or Prospectus or for additional information with respect thereto, or of notice of institution of proceedings for, or the entry of a stop order suspending the effectiveness of the Registration Statement and, if the Commission should enter a stop order suspending the effectiveness of the Registration Statement, to make every reasonable effort to obtain the lifting or removal of such order as soon as possible; to advise you promptly of any proposal to amend or supplement the Registration Statement or Prospectus including by filing any documents that would be incorporated therein by reference and to file no such amendment or supplement to which you shall object in writing;

(e) to file promptly all reports and any definitive proxy or information statement required to be filed by the Company with the Commission in order to comply with the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the shares, and to promptly notify you of such filing;

(f) if necessary or appropriate, to file a registration statement pursuant to Rule 462(b) under the Act;

(g) to furnish or make available to you and, upon request, to each of the other Underwriters for a period of five years from the date of this Agreement (i) copies of any reports or other communications which the Company shall send to its stockholders or shall from time to time publish or publicly disseminate, (ii) copies of all annual, quarterly and current reports filed with the Commission on Forms 10-K, 10-Q and 8-K, or such other similar form as may be designated by the Commission, (iii) copies of documents or reports filed with any national securities exchange on which any class of securities of the Company is listed, and (iv) such other information as you may reasonably request regarding the Company or its Subsidiaries, in each case as soon as such communications, documents or information becomes available;

(h) to advise the Underwriters promptly of the happening of any event known to the Company within the time during which a Prospectus relating to the Shares is required to be delivered under the Act which, in the judgment of the Company, would require the making of any change in the Prospectus then being used, or in the information incorporated therein by reference, so that the Prospectus would not include an untrue statement of material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they are made, not misleading, and, during such time, to prepare and furnish, at the Company's expense, to the Underwriters promptly such amendments or

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supplements to such Prospectus as may be necessary to reflect any such change and to furnish you a copy of such proposed amendment or supplement before filing any such amendment or supplement with the Commission;

(i) to furnish to you four (4) signed copies of the Registration Statement, as initially filed with the Commission, and of all amendments thereto (including all exhibits thereto) and sufficient conformed copies of the foregoing (other than exhibits) for distribution of a copy to each of the other Underwriters;

(j) if available, to furnish to you as early as practicable prior to the time of purchase and the additional time of purchase, as the case may be, but not later than two business days prior thereto, a copy of the latest available unaudited interim consolidated financial statements, if any, of the Company and its Subsidiaries which have been read by the Company's independent certified public accountants, as stated in their letter to be furnished pursuant to Section 8(e) hereof; and

(k) to apply the net proceeds from the sale of the Shares in the manner set forth under the caption "Use of Proceeds" in the Prospectus.

6. Certain Covenants of the Company and the Selling Stockholders. The Company and each of the Selling Stockholders agree with each Underwriter as follows:

(a) the Company will pay all expenses, fees and taxes (other than any transfer taxes and fees and disbursements of counsel for the Underwriters except as set forth under Section 7 hereof or (iii) or (iv) below) in connection with (i) the preparation and filing of the Registration Statement, each Preliminary Prospectus, the Prospectus, and any amendments or supplements thereto, and the printing and furnishing of copies of each thereof to the Underwriters and to dealers (including costs of mailing and shipment), (ii) the issuance, sale and delivery of the Shares by the Company and the Selling Stockholders, (iii) the word processing and/or printing of this Agreement, any Agreement Among Underwriters, any dealer agreements, any Statements of Information, the Custody Agreement and the Powers of Attorney and the reproduction and/or printing and furnishing of copies of each thereof to the Underwriters and to dealers (including costs of mailing and shipment), (iv) the qualification of the Shares for offering and sale under state laws and the determination of their eligibility for investment under state law as aforesaid (including the legal fees and filing fees and other disbursements of counsel to the Underwriters) and the printing and furnishing of copies of any blue sky surveys or legal investment surveys to the Underwriters and to dealers, (v) any listing of the Shares on any securities exchange or qualification of the Shares for quotation on NASDAQ and any registration thereof under the Exchange Act, (vi) the filing for review of the public offering of the Shares by the National Association of Securities Dealers, Inc. (the NASD), and (vii) the performance of the Company's and the Selling Stockholders' other obligations hereunder; and

(b) the Company (other than pursuant to its existing stock plans or in connection with any acquisition transaction) and the Selling Stockholders will not issue, sell, grant any option to sell or otherwise dispose of, directly or indirectly, any shares of Common Stock or securities convertible into or exchangeable for Common Stock or warrants or other

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rights to purchase Common Stock or, in the case of the Company, permit the registration under the Act of any shares of Common Stock, except for the registration of the Shares and the sales to the Underwriters pursuant to this Agreement and except for issuances of Common Stock upon the exercise of outstanding options, warrants and debentures, for a period of ninety (90) days after the date of the Prospectus, without the prior written consent of WDR.

7. Reimbursement of Underwriters' Expenses. If the Shares are not delivered for any reason other than the termination of this Agreement pursuant to the first two paragraphs of Section 10 hereof or the default by one or more of the Underwriters in its or their respective obligations hereunder, the Company shall, in addition to paying the amounts described in Section 6(a) hereof, reimburse the Underwriters for all of their out-of-pocket expenses,

including the fees and disbursements of their counsel, but the Company will not in any event be liable to any of the Underwriters for damages on account of loss of anticipated profits.

8. Conditions of Underwriters' Obligations. The several obligations of the Underwriters hereunder are subject to the accuracy of the representations and warranties on the part of the Company and the Selling Stockholders at the time of purchase (and the several obligations of the Underwriters at the additional time of purchase are subject to the accuracy of the representations and warranties on the part of the Company and the Selling Stockholders at the time of purchase (unless previously waived) and at the additional time of purchase, as the case may be), the performance by the Company and the Selling Stockholders of their obligations hereunder and to the following additional conditions precedent:

(a) The Company shall furnish to you at the time of purchase and at the additional time of purchase, as the case may be, an opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation, addressed to the Underwriters, and dated the time of purchase or the additional time of purchase, as the case may be, with reproduced copies for each of the other Underwriters and in form satisfactory to Brobeck, Phleger & Harrison LLP, counsel for the Underwriters, stating that:

(i) the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with full corporate power and authority to own, lease and operate its properties and conduct its business as described in the Registration Statement and the Prospectus, to execute and deliver this Agreement and to issue, sell and deliver the Shares as herein contemplated;

(ii) the Company is duly qualified or licensed by each jurisdiction in which it conducts its business and in which the failure, individually or in the aggregate, to be so licensed or qualified could have a Material Adverse Effect, and the Company is duly qualified, and is in good standing, in each jurisdiction in which it owns or leases real property or maintains an office and in which such qualification is necessary;

(iii) this Agreement has been duly authorized, executed and delivered by the Company;

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(iv) the Shares to be sold by the Company pursuant to this Agreement have been duly authorized and, when issued and delivered to and paid for by the Underwriters, will be duly and validly issued and will be fully paid and non-assessable;

(v) as of the date set forth in the Registration Statement and the Prospectus, the Company has an authorized capitalization as set forth in the Registration Statement and the Prospectus; the outstanding shares of capital stock of the Company have been duly and validly authorized and issued, and are fully paid, nonassessable and free of statutory and to such counsel's knowledge contractual preemptive rights; the Shares when issued will be free of statutory and to such counsel's knowledge contractual preemptive rights, resale rights, rights of first refusal and similar rights, except as disclosed in the Registration Statement and Prospectus;

(vi) other than the Subsidiaries, to such counsel's knowledge the Company does not own or control, directly or indirectly, any corporation, association or other entity that is a "significant subsidiary" (as defined in the Rules and Regulations);

(vii) the statements set forth in the Prospectus under the caption "Description of Capital Stock," insofar as they purport to constitute a summary of the terms of the capital stock of the Company, fairly and accurately summarize such terms in all material respects;

(viii) at the time it became effective, the Registration Statement and the Prospectus (except as to the financial statements and

schedules and other financial and statistical data contained or incorporated by reference therein, as to which such counsel need express no opinion) comply as to form in all material respects with the requirements of the Act;

(ix) the Registration Statement has become effective under the Act and, to the best of such counsel's knowledge, no stop order proceedings with respect thereto are pending or threatened under the Act and any required filing of the Prospectus and any supplement thereto pursuant to Rule 424 under the Act has been made in the manner and within the time period required by such Rule 424;

(x) no approval, authorization, consent or order of or filing with any national, state or local governmental or regulatory commission, board, body, authority or agency is required in connection with the issuance and sale of the Shares and consummation by the Company of the transaction as contemplated hereby other than registration of the Shares under the Act (except such counsel need express no opinion as to any necessary qualification under the state securities or blue sky laws of the various jurisdictions in which the Shares are being offered by the Underwriters);

(xi) the execution and delivery of this Agreement by the Company and the performance by the Company of its obligations pursuant to this Agreement do not and will not violate any provisions of the charter or by-laws of the Company, or result in any breach of, or constitute a default under (nor constitute any event which with notice, lapse

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of time, or both, would result in any breach of or constitute a default under) any provision of any license, indenture, mortgage, deed of trust, bank loan, credit agreement or other evidence of indebtedness, or any lease, contract or other agreement or instrument to which the Company is a party or it or its properties may be bound or affected and which are filed as an exhibit to the Registration Statement or incorporated therein by reference, or violate any federal, state, local or foreign law, regulation or rule or any decree, judgment or order applicable to the Company and known to such counsel;

(xii) to the best of such counsel's knowledge, the Company is not in violation of its charter or by-laws;

(xiii) to the best of such counsel's knowledge, there are no actions, suits, claims, investigations or proceedings pending, threatened or contemplated to which the Company or any of its Subsidiaries is subject or of which any of their respective properties, is subject at law or in equity or before or by any federal, state, local or foreign governmental or regulatory commission, board, body, authority or agency which are required to be described in the Prospectus but are not so described;

(xiv) the documents incorporated by reference in the Registration Statement and Prospectus, when they were filed (or, if an amendment with respect to any such document was filed when such amendment was filed) with the Commission, complied as to form in all material respects with the Exchange Act (except as to the financial statements and schedules and other financial and statistical data contained or incorporated by reference therein as to which such counsel need express no opinion); and

(xv) the Company will not, upon consummation of the transactions contemplated by this Agreement, be an "investment company," or a "promoter" or "principal underwriter" for, a "registered investment company," as such terms are defined in the Investment Company Act of 1940, as amended.

In addition, such counsel shall state that such counsel have participated in conferences with officers and other representatives of the Company, representatives of the independent public accountants of the Company and representatives of the Underwriters at which the contents of the

Registration Statement and Prospectus were discussed and, although such counsel is not passing upon and does not assume responsibility for the accuracy, completeness or fairness of the statements contained in the Registration Statement or Prospectus (except as and to the extent stated in subparagraphs (v) and (vii) above), on the basis of the foregoing nothing has come to the attention of such counsel that causes them to believe that the Registration Statement or any amendment thereto at the time such Registration Statement or amendment became effective contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading, or that the Prospectus or any supplement thereto at the date of such Prospectus or such supplement, and at all times up to and including the time of purchase or additional time of purchase, as the case may be, contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under

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which they were made, not misleading (it being understood that such counsel need express no opinion with respect to the financial statements and schedules and other financial and statistical data included in the Registration Statement or Prospectus).

(b) The Selling Stockholders shall furnish to you at the time of purchase and at the additional time of purchase, as the case may be, opinions of Wilson Sonsini Goodrich & Rosati Professional Corporation as counsel to the Selling Shareholders other than Scientific-Atlanta, N.M. New Media Entertainment, Ltd., Anita Gifford as an authorized employee of Scientific-Atlanta, and [\_\_\_\_\_] as counsel to N.M. New Media Entertainment, Ltd., addressed to the Underwriters, and dated the time of purchase or the additional time of purchase, as the case may be, with reproduced copies for each of the other Underwriters, and in form and substance satisfactory to Brobeck, Phleger & Harrison LLP, counsel for the Underwriters, stating that:

(i) this Agreement and the Custody Agreement have been duly executed and delivered by or on behalf of each of the Selling Stockholders;

(ii) each Selling Stockholder has full legal right and power, and has obtained any authorization or approval required by law (other than those imposed by the Act and the securities or blue sky laws of certain jurisdictions), to sell, assign, transfer and deliver the Shares to be sold by such Selling Stockholder in the manner provided in this Agreement;

(iii) assuming the Underwriters purchase the Shares to be sold by each Selling Stockholder for value, in good faith and without notice of any adverse claim within the meaning of Article VIII of the Uniform Commercial Code, upon delivery and payment for shares to be sold by each Selling Stockholder pursuant to this Agreement, the Underwriters will receive good and valid title to such Shares, free and clear of all security interests, liens, equities, claims and other encumbrances; and

(iv) the Custody Agreement and the Power of Attorney have been duly executed and delivered by or on behalf of each Selling Stockholder.

In rendering such opinion, Wilson Sonsini Goodrich & Rosati Professional Corporation, Anita Gifford and [\_\_\_\_\_] may rely as to matters governed by the laws of states other than California, Delaware, or Federal laws on local counsel in such jurisdictions, provided that in each case, Wilson Sonsini Goodrich & Rosati Professional Corporation, Anita Gifford and [\_\_\_\_\_] shall state that it believes that it and the Underwriters are justified in relying on such other counsel.

(c) The Company shall furnish to you at the time of purchase opinions of [\_\_\_\_\_] and [\_\_\_\_\_] Israeli counsel to the Company's Subsidiaries in Israel, relating to each of the Israeli Subsidiaries (each an "Israeli Subsidiary") addressed to the Underwriters and dated the time of purchase, with reproduced copies for each of the other Underwriters, and in form satisfactory to Brobeck, Phleger & Harrison, LLP, counsel to the



Underwriters stating that:

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(i) the Israeli Subsidiary has been duly incorporated and is validly existing as a corporation under the laws of Israel, and has all requisite corporate authority to own, lease and license its properties and conduct the business in which it is engaged;

(ii) to the best of such counsel's knowledge, the Israeli Subsidiary is not qualified as a foreign corporation in any jurisdiction, and, to the best of such counsel's knowledge, is not required to so qualify except where the failure to so qualify would not have a material adverse effect on the Company and the Israeli Subsidiary taken as a whole;

(iii) all of the issued and outstanding capital stock of the Israeli Subsidiary has been duly and validly issued and is fully paid and nonassessable and was not issued in violation of preemptive rights and is owned, directly or indirectly, by the Company, to the best of such counsel's knowledge, free and clear of any lien encumbrance, claim, security interest, restriction on transfer, stockholders' agreement, voting trust or other defect of title whatsoever;

(iv) to the best of such counsel's knowledge, there is no litigation or governmental or other action, suit, proceedings or investigations before any court or before or by any public, regulatory or governmental agency or body pending or, to the best of such counsel's knowledge, threatened in Israel against, or involving the properties or business of, the Israeli Subsidiary in Israel which, if determined adversely to the Israeli Subsidiary would have a Material Adverse Effect on the consolidated financial position, shareholders equity or results of operations of the Company and its subsidiaries; and

(v) to the best of such counsel's knowledge, the execution, delivery and performance by Company of the Underwriting Agreement and the performance by Company of its obligations set forth therein do not and will not (A) result in a breach or violation of any of the provisions of, or constitute a default (or an event which with notice or lapse of time, or both, would constitute a default) or require consent under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Israeli Subsidiary of which we know pursuant to, any material agreement, instrument, franchise, license or permit known to such counsel to which the Israeli Subsidiary is a party or by which it or its properties or assets are bound (insofar as such agreements or instruments are governed by Israeli law) the effect of which breach or violation would have a Material Adverse Effect, or (B) violate or conflict with any provision of the Memorandum of Association or Articles of Association of the Israeli Subsidiary, or, to the best of such counsel's knowledge, any judgment, decree, order, statute, rule or regulation known to such counsel of any Israeli court or any Israeli public, governmental or regulatory agency or body having jurisdiction over the Israeli Subsidiary or any of its properties or assets in Israel of which such counsel knows. To the best of such counsel's knowledge, no consent, approval, authorization, order, registration, filing, qualification, license or permit of or with any Israeli court or any Israeli public, governmental agency or body having jurisdiction over the Israeli Subsidiary or any of its properties or assets in Israel of which we know is required for the execution, delivery and performance by the

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Company of the Underwriting Agreement or the consummation of the transactions contemplated thereby, except that no opinion is rendered herein with respect to the Israeli Securities Law, 1978 and rules and regulations promulgated thereunder, as well as with respect to the compliance by the Company therewith.

In rendering such opinion, [\_\_\_\_\_] and [\_\_\_\_\_] may rely as to matters governed by the laws of jurisdiction other than Israel on local counsel in such jurisdictions, provided that in each case, [\_\_\_\_\_] and [\_\_\_\_\_] shall state that it believes that it and the Underwriters are justified in relying on such other counsel.

(d) The Company shall furnish to you at the time of purchase an opinion of Taylor Joynson Garrett, U.K. counsel to the Company with respect to Harmonic (U.K.) Ltd. (the "UK Subsidiary"), addressed to the Underwriters and dated the time of purchase, with reproduced copies for each of the other Underwriters, and in form satisfactory to Brobeck, Phleger & Harrison LLP, counsel to the Underwriters stating that:

To the best of such counsel's knowledge, based upon and subject to the foregoing and subject to the reservations referred to below, we are of the opinion that

(i) The U.K. Subsidiary is duly incorporated and validly existing as a private limited company registered in England under company number 3335009. The Company is authorized pursuant to its Memorandum of Association to carry on its current business and to own, lease and license its current premises. The U.K. Subsidiary is in "good standing" as shown by the Certificate of Good Standing received from the Registrar of Companies.

(ii) The authorized share capital of the U.K. Subsidiary is Pound Sterling1,000,000 divided into 1,000,000 shares of Pound Sterling1 each of which 1,000 shares have been validly issued and are fully paid up. Harmonic Lightwaves Inc. is the registered holder of 1,000 ordinary shares of Pound Sterling1 each in the capital of the U.K. Subsidiary which, to the best of such counsel's knowledge and belief, are free and clear of all liens, restrictions on transfer, encumbrances and security interests. Harmonic Lightwaves Inc. is the former name of Harmonic Inc.

In rendering such opinion, Taylor Joynson Garrett may rely as to matters governed by the laws of jurisdiction other than the laws of England and Wales on local counsel in such jurisdictions, provided that in each case, Taylor Joynson Garrett shall state that it believes that it and the Underwriters are justified in relying on such other counsel.

(e) You shall have received from PriceWaterhouseCoopers LLP, letters dated, respectively, the date of this Agreement and the time of purchase and additional time of purchase, as the case may be, and addressed to the Underwriters (with reproduced copies for each of the Underwriters) in the forms heretofore approved by WDR.

(f) You shall have received at the time of purchase and at the additional time of purchase, as the case may be, the favorable opinion of Brobeck, Phleger & Harrison LLP,

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counsel for the Underwriters, dated the time of purchase or the additional time of purchase, as the case may be, as to the matters referred to in subparagraphs (iii), (iv), (vii) (with respect to the Shares only), (viii) and (ix) of paragraph (a) of this Section 8.

In addition, such counsel shall state that such counsel have participated in conferences with officers and other representatives of the Company, counsel for the Company, representatives of the independent public accountants of the Company and representatives of the Underwriters at which the contents of the Registration Statement and Prospectus and related matters were discussed and, although such counsel is not passing upon and does not assume any responsibility for the accuracy, completeness or fairness of the statements contained in the Registration Statement and Prospectus (except as to matters referred to with respect to the Shares under subparagraph (vii) of paragraph (a) of this Section 8), on the basis of the foregoing (relying as to materiality to a large extent upon the opinions of officers and other representatives of the Company), no facts have come to the attention of such counsel which lead them to believe that the Registration Statement or any amendment thereto at the time such Registration Statement or amendment became effective contained an untrue

statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading or that the Prospectus as of its date or any supplement thereto as of its date contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading (it being understood that such counsel need express no comment with respect to the financial statements and schedules and other financial and statistical data included in the Registration Statement or Prospectus).

(g) No amendment or supplement to the Registration Statement or Prospectus, including documents deemed to be incorporated by reference therein, shall be filed prior to the time the Registration Statement becomes effective to which you object in writing.

(h) The Registration Statement shall become effective, or if Rule 430A under the Act is used, the Prospectus shall have been filed with the Commission pursuant to Rule 424(b) under the Act, at or before 5:00 P.M., New York City time, on the date of this Agreement, unless a later time (but not later than 5:00 P.M., New York City time, on the second full business day after the date of this Agreement) shall be agreed to by the Company, the Representatives of the Selling Stockholders and you in writing or by telephone, confirmed in writing; provided, however, that the Company, the Representatives of the Selling Stockholders and you and any group of Underwriters, including you, who have agreed hereunder to purchase in the aggregate at least 50% of the Firm Shares may from time to time agree on a later date.

(i) Prior to the time of purchase or the additional time of purchase, as the case may be, (i) no stop order with respect to the effectiveness of the Registration Statement shall have been issued under the Act or proceedings initiated under Section 8(d) or 8(e) of the Act; (ii) the Registration Statement and all amendments thereto, or modifications thereof, if any, shall not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and (iii) the Prospectus and all amendments or supplements thereto, or modifications thereof, if any, shall not contain an

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untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they are made, not misleading.

(j) Between the time of execution of this Agreement and the time of purchase or the additional time of purchase, as the case may be, (i) no material and unfavorable change, financial or otherwise (other than as referred to in the Registration Statement and Prospectus), in the business, condition or prospects of the Company and its Subsidiaries taken as a whole shall occur or become known and (ii) no transaction which is material and unfavorable to the Company shall have been entered into by the Company or any of its Subsidiaries.

(k) The Company will, at the time of purchase or additional time of purchase, as the case may be, deliver to you a certificate of two of its executive officers to the effect that the representations and warranties of the Company as set forth in this Agreement are true and correct as of [each] such date, that the Company shall perform such of its obligations under this Agreement as are to be performed at or before the time of purchase and at or before the additional time of purchase, as the case may be and the conditions set forth in paragraphs (i) and (j) of this Section 8 have been met.

(l) You shall have received signed letters, dated the date of this Agreement, from each of the Selling Stockholders and each of the directors and officers of the Company and certain of its other stockholders to the effect that such persons shall not sell, offer or agree to sell, contract to sell, grant any option to sell or otherwise dispose of, directly or indirectly, any shares of Common Stock of the Company or securities convertible into or exchangeable or exercisable for Common Stock or warrants or other rights to purchase Common Stock for a period of 90 days after the date of the Prospectus without WDR's prior written consent.

(m) The Company and the Selling Stockholders shall have

furnished to you such other documents and certificates as to the accuracy and completeness of any statement in the Registration Statement and the Prospectus as of the time of purchase and the additional time of purchase, as the case may be, as you may reasonably request.

(n) The Shares shall have been approved for listing for quotation on NASDAQ, subject only to notice of issuance at or prior to the time of purchase, or the additional time of purchase, as the case may be.

(o) The Selling Stockholders will at the time of purchase deliver to you a certificate of the Representatives of the Selling Stockholders to the effect that the representations and the warranties of the Selling Stockholders as set forth in this Agreement are true and correct as of each such date.

(p) Between the time of execution of this Agreement and the time of purchase, there shall not have occurred any downgrading, nor shall any notice or announcement have been given or made of (i) any intended or potential downgrading or (ii) any review or possible change that does not indicate an improvement, in the rating accorded any securities of or

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guaranteed by the Company by any "nationally recognized statistical rating organization", as that term is defined in Rule 436(g)(2) under the Act.

9. Effective Date of Agreement; Termination. This Agreement shall become effective (i) if Rule 430A under the Act is not used, when you shall have received notification of the effectiveness of the Registration Statement, or (ii) if Rule 430A under the Act is used, when the parties hereto have executed and delivered this Agreement.

The obligations of the several Underwriters hereunder shall be subject to termination in the absolute discretion of you or any group of Underwriters (which may include you) which has agreed to purchase in the aggregate at least 50% of the Firm Shares, if, since the time of execution of this Agreement or the respective dates as of which information is given in the Registration Statement and Prospectus, (y) there has been any material adverse and unfavorable change, financial or otherwise (other than as referred to in the Registration Statement and Prospectus), in the operations, business, condition or prospects of the Company and its Subsidiaries taken as a whole, which would, in your judgment or in the judgment of such group of Underwriters, make it impracticable to market the Shares, or (z) there shall have occurred any downgrading, or any notice shall have been given of (i) any intended or potential downgrading or (ii) any review or possible change that does not indicate an improvement, in the rating accorded any securities of or guaranteed by the Company by any "nationally recognized statistical rating organization", as that term is defined in Rule 436(g)(2) under the Act or, if, at any time prior to the time of purchase or, with respect to the purchase of any Additional Shares, the additional time of purchase, as the case may be, trading in securities on the New York Stock Exchange, the American Stock Exchange or the NASDAQ National Market shall have been suspended or limitations or minimum prices shall have been established on the New York Stock Exchange, the American Stock Exchange or the NASDAQ National Market or if a banking moratorium shall have been declared either by the United States or New York State authorities, or if the United States shall have declared war in accordance with its constitutional processes or there shall have occurred any material outbreak or escalation of hostilities or other national or international calamity or crisis of such magnitude in its effect on the financial markets of the United States as, in your judgment or in the judgment of such group of Underwriters, to make it impracticable to market the Shares.

If you or any group of Underwriters elects to terminate this Agreement as provided in this Section 9, the Company, the Representatives of the Selling Stockholders and each other Underwriter shall be notified promptly by letter or telegram.

If the sale to the Underwriters of the Shares, as contemplated by this Agreement, is not carried out by the Underwriters for any reason permitted under this Agreement or if such sale is not carried out because the Company or the Selling Stockholders, as the case may be, shall be unable to comply with any of the terms of this Agreement, the Company or the Selling Stockholders, as the

case may be, shall not be under any obligation or liability under this Agreement (except to the extent provided in Sections 6(a), 7 and 11 hereof), and the Underwriters shall be under no obligation or liability to the Company and the Selling Stockholders under this Agreement (except to the extent provided in Section 11 hereof) or to one another hereunder.

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10. Increase in Underwriters' Commitments. Subject to Sections 8 and 9, if any Underwriter shall default in its obligation to take up and pay for the Firm Shares to be purchased by it hereunder (otherwise than for reasons sufficient to justify the termination of this Agreement under the provisions of Section 9 hereof) and if the number of Firm Shares which all Underwriters so defaulting shall have agreed but failed to take up and pay for does not exceed 10% of the total number of Firm Shares, the non-defaulting Underwriters shall take up and pay for (in addition to the number of Firm Shares they are obligated to purchase pursuant to Section 1 hereof) the number of Firm Shares agreed to be purchased by all such defaulting Underwriters, as hereinafter provided. Such Shares shall be taken up and paid for by such non-defaulting Underwriter or Underwriters in such amount or amounts as you may designate with the consent of each Underwriter so designated or, in the event no such designation is made, such Shares shall be taken up and paid for by all non-defaulting Underwriters pro rata in proportion to the aggregate number of Firm Shares set opposite the names of such non-defaulting Underwriters in Schedule A.

Without relieving any defaulting Underwriter from its obligations hereunder, the Company and the Selling Stockholders agree with the non-defaulting Underwriters that they will not sell any Firm Shares hereunder unless all of the Firm Shares are purchased by the Underwriters (or by substituted Underwriters selected by you with the approval of the Company or selected by the Company with your approval).

If a new Underwriter or Underwriters are substituted by the Underwriters or by the Company for a defaulting Underwriter or Underwriters in accordance with the foregoing provision, the Company or you shall have the right to postpone the time of purchase for a period not exceeding five business days in order that any necessary changes in the Registration Statement and Prospectus and other documents may be effected.

The term Underwriter as used in this agreement shall refer to and include any Underwriter substituted under this Section 10 with like effect as if such substituted Underwriter had originally been named in Schedule A.

If the aggregate number of Shares which the defaulting Underwriter or Underwriters agreed to purchase exceeds 10% of the total number of Shares which all Underwriters agreed to purchase hereunder, and if neither the non-defaulting Underwriters nor the Company shall make arrangements within the five business day period stated above for the purchase of all the Shares which the defaulting Underwriter or Underwriters agreed to purchase hereunder, this Agreement shall be terminated without further act or deed and without any liability on the part of the Company to any non-defaulting Underwriter and without any liability on the part of any non-defaulting Underwriter to the Company. Nothing in this paragraph, and no action taken hereunder, shall relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

11. Indemnity and Contribution.

(a) The Company agrees to indemnify, defend and hold harmless each Underwriter, its partners, directors and officers, and any person who controls any Underwriter

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within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, and the successors and assigns of all of the foregoing persons from and against any loss, damage, expense, liability or claim (including the reasonable cost of investigation) which, jointly or severally, any such Underwriter or any such person may incur under the Act, the Exchange Act, the Common Law or otherwise,

insofar as such loss, damage, expense, liability or claim arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement (or in the Registration Statement as amended by any post-effective amendment thereof by the Company) or in a Prospectus (the term Prospectus for the purpose of this Section 11 being deemed to include any Preliminary Prospectus, the Prospectus and the Prospectus as amended or supplemented by the Company), or (ii) any omission or alleged omission to state a material fact required to be stated in either such Registration Statement or Prospectus or necessary to make the statements made therein not misleading, except insofar as any such loss, damage, expense, liability or claim arises out of or is based upon any untrue statement or alleged untrue statement of a material fact contained in and in conformity with information furnished in writing by or on behalf of any Underwriter to the Company expressly for use with reference to such Underwriter in such Registration Statement or such Prospectus or arises out of or is based upon any omission or alleged omission to state a material fact in connection with such information required to be stated in either such Registration Statement or Prospectus or necessary to make such information not misleading; provided, further, that the Indemnity Agreement contained in this Section 11(a) with respect to any Preliminary Prospectus shall not inure to benefit of any Underwriter from whom the person asserting any such losses, claims, damages, liabilities or expenses purchase the Shares which is the subject thereof (or to the benefit of any person, controlling such Underwriter) if at or prior to the written confirmation of the sale of such shares, a copy of the Prospectus (or the Prospectus as amended or supplemented) was not sent or delivered to such person and the untrue statement or omission of a material fact contained in such Preliminary Prospectus was corrected in the Prospectus (or the Prospectus as amended or supplemented).

(b) The Selling Stockholders severally agree to indemnify, defend and hold harmless each Underwriter, its partners, directors and officers, and any person who controls any Underwriter within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, and the successors and assigns of all of the foregoing persons from and against any loss, damage, expense, liability or claim (including the reasonable cost of investigation) which jointly or severally, any such Underwriter or any such person may incur under the Act, the Exchange Act, the Common Law or otherwise, insofar as such loss, damage, expense, liability or claim arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement (or in the Registration Statement as amended by any post-effective amendment thereof by the Company) or in a Prospectus, or (ii) any omission or alleged omission to state a material fact required to be stated in either such Registration Statement or Prospectus or necessary to make the statements made therein not misleading, except that in each case to the extent but only to the extent that such untrue statement or alleged untrue statement or omission or alleged omission was made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by such Selling Stockholder expressly for use therein, and will reimburse each Underwriter for any legal or other

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expenses reasonably incurred by such Underwriter in connection with investigating or defending any such loss, claim, damage, liability or action as such expenses are incurred; provided, that (A) the Selling Stockholders will not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement in or omission or alleged omission from any of such documents in reliance upon and in conformity with written information furnished to the Company by an Underwriter through the Representatives specifically for use therein, and provided, further, that the liability under this Section 11 of each such Selling Stockholder shall be limited to an amount equal to the aggregate proceeds, net of underwriting discounts and commissions, to such Selling Stockholder from the sale of Shares sold by such Selling Stockholder hereunder, and (B) with respect to any untrue statement or alleged untrue statement in or omission or alleged omission from any Preliminary Prospectus the indemnity agreement contained in this subsection 11(b) shall not inure to the benefit of any Underwriter from whom the person asserting any such losses, claims, damages or liabilities purchased the Shares concerned, to the extent that a Prospectus relating to such Shares was required to be delivered by such Underwriter under the Act in connection with such purchase and any such loss, claim, damage or

liability of such Underwriter results from the fact that there was not sent or given to such person, at or prior to the written confirmation of the sale of such Shares to such person, a copy of the Prospectus if the Company had previously furnished copies thereof to such Underwriter. Notwithstanding anything herein to the contrary, the Underwriters agree that they shall not seek indemnification under this Section 11(b) from the Selling Stockholders unless the Underwriters shall first have sought indemnity from the Company under Section 11(a) and the Company has not agreed to satisfy such request for indemnification in full within 120 days; provided further, that the Underwriters shall not be required to effect such initial demand upon the Company and wait such 120-day period if it would prejudice their right to indemnification from the Selling Stockholders hereunder.

(c) If any action, suit or proceeding (together, a "Proceeding") is brought against an Underwriter or any such person in respect of which indemnity may be sought against the Company or any Selling Stockholder pursuant to the foregoing paragraphs 11(a) and 11(b), such Underwriter or such person shall promptly notify the Company and the Representatives of the Selling Stockholders in writing of the institution of such Proceeding and the Company or such Selling Stockholder, as the case may be, shall assume the defense of such Proceeding, including the employment of counsel reasonably satisfactory to such indemnified party and payment of all fees and expenses; provided, however, that the omission to so notify the Company or the Representative of the Selling Stockholders shall not relieve the Company or any Selling Stockholder from any liability which the Company may have to any Underwriter or any such person or otherwise, unless the party to whom notice was not given was unaware of the proceeding to which such notice would have related and was materially prejudiced by the failure to give such notice. Such Underwriter or such controlling person shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such Underwriter or of such person unless the employment of such counsel shall have been authorized in writing by the Company or such Selling Stockholder in connection with the defense of such Proceeding or the Company or such Selling Stockholder shall not have, within a reasonable period of time in light of the circumstances employed counsel to have charge of the defense of such Proceeding or such indemnified party or parties shall have reasonably

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concluded that there may be defenses available to it or them which are different from, additional to or in conflict with those available to the Company or such Selling Stockholder (in which case the Company or such Selling Stockholder shall not have the right to direct the defense of such Proceeding on behalf of the indemnified party or parties), in any of which events such fees and expenses shall be borne by the Company or such Selling Stockholder, as the case may be, and paid as incurred (it being understood, however, that the Company or such Selling Stockholder shall not be liable for the expenses of more than one separate counsel (in addition to any local counsel) in any one Proceeding or series of related Proceedings in the same jurisdiction representing the indemnified parties who are parties to such Proceeding). The Company or such Selling Stockholder shall not be liable for any settlement of any such Proceeding effected without its written consent but if settled with the written consent of the Company or such Selling Stockholder, the Company or such Selling Stockholder agrees to indemnify and hold harmless any Underwriter and any such person from and against any loss or liability by reason of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement of any pending or threatened Proceeding in respect of which any indemnified party is or could have been a party and indemnity could have been sought hereunder by such indemnified party, unless such settlement includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such Proceeding and does not include an admission of fault, culpability or a failure to act, by or on behalf of such indemnified party.

(d) Each Underwriter severally agrees to indemnify, defend and hold harmless the Company, its directors and officers, each Selling Stockholder and any person who controls the Company or any Selling Stockholder within the meaning of Section 15 of the Act, or Section 20 of the Exchange Act from and against any loss, damage, expense, liability or claim (including the reasonable cost of investigation) which, jointly or severally, the Company, any Selling Stockholder or any such person may incur under the Act, the Exchange Act, or Common Law or otherwise, insofar as such loss, damage, expense,

liability or claim arises out of or is based upon any untrue statement or alleged untrue statement of a material fact contained in and in conformity with information furnished in writing by or on behalf of such Underwriter through you to the Company expressly for use with reference to such Underwriter in the Registration Statement (or in the Registration Statement as amended by or on behalf of any post-effective amendment thereof by the Company) or in a Prospectus, or arises out of or is based upon any omission or alleged omission to state a material fact in connection with such information required to be stated in such Registration Statement or Prospectus or necessary to make such information not misleading.

(e) If any Proceeding is brought against the Company, any Selling Stockholder or any such person in respect of which indemnity may be sought against any Underwriter pursuant to the foregoing paragraph 11(d), the Company, such Selling Stockholder or such person shall promptly notify such Underwriter in writing of the institution of such Proceeding and such Underwriter shall assume the defense of such Proceeding, including the employment of counsel reasonably satisfactory to such indemnified party and payment of all fees and expenses, provided, however, that the omission to so notify such Underwriter shall not relieve such Underwriter, from any liability which such Underwriter may have to the Company,

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any Selling Stockholder or any such person or otherwise. The Company, such Selling Stockholder or such person shall have the right to employ its own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of the Company, such Selling Stockholder or such person unless the employment of such counsel shall have been authorized in writing by such Underwriter in connection with the defense of such Proceeding or within a reasonable period of time in light of the circumstances, such Underwriter shall not have employed counsel to have charge of the defense of such Proceeding or such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to or in conflict with those available to such Underwriter (in which case such Underwriter shall not have the right to direct the defense of such Proceeding on behalf of the indemnified party or parties, but such Underwriter may employ counsel and participate in the defense thereof but the fees and expenses of such counsel shall be at the expense of such Underwriter), in any of which events such fees and expenses shall be borne by such Underwriter and paid as incurred (it being understood, however, that such Underwriter shall not be liable for the expenses of more than one separate counsel (in addition to any local counsel) in any one Proceeding or series of related Proceedings in the same jurisdiction representing the indemnified parties who are parties to such Proceeding). No Underwriter shall be liable for any settlement of any such Proceeding effected without the written consent of such Underwriter but if settled with the written consent of such Underwriter, such Underwriter agrees to indemnify and hold harmless the Company, any Selling Stockholder and any such person from and against any loss or liability by reason of such settlement. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by the second sentence of this paragraph, then the indemnifying party agrees that it shall be liable for any settlement of any Proceeding effected without its written consent if (i) such settlement is entered into more than 60 business days after receipt by such indemnifying party of the aforesaid request, (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement and (iii) such indemnified party shall have given the indemnifying party at least 30 days' prior notice of its intention to settle. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement of any pending or threatened Proceeding in respect of which any indemnified party is or could have been a party and indemnity could have been sought hereunder by such indemnified party, unless such settlement includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such Proceeding.

(f) If the indemnification provided for in this Section 11 is unavailable to an indemnified party under subsections (a), (b) and (e) of this Section 11 in respect of any losses, damage, expenses, liabilities or claims referred to therein, then each applicable indemnifying party, in lieu of indemnifying such indemnified party, shall contribute to the amount paid or payable by such indemnified party as a result of such losses, damages, expenses,



liabilities or claims (i) in such proportion as is appropriate to reflect the relative benefits received by the Company and the Selling Stockholders on the one hand and the Underwriters on the other hand from the offering of the Shares or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company and the Selling

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Stockholders on the one hand and of the Underwriters on the other in connection with the statements or omissions which resulted in such losses, damages, expenses, liabilities or claims, as well as any other relevant equitable considerations. The relative benefits received by the Company and the Selling Stockholders on the one hand and the Underwriters on the other shall be deemed to be in the same respective proportion as the total proceeds from the offering (net of underwriting discounts and commissions but before deducting expenses) received by the Company and the Selling Stockholders and the total underwriting discounts and commissions received by the Underwriters, bear to the aggregate public offering price is the shares. The relative fault of the Company and the Selling Stockholders on the one hand and of the Underwriters on the other shall be determined by reference to, among other things, whether the untrue statement or alleged untrue statement of a material fact or omission or alleged omission relates to information supplied by the Company, by the Selling Stockholders or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The amount paid or payable by a party as a result of the losses, damages, expenses, liabilities and claims referred to in this subsection shall be deemed to include any legal or other fees or expenses reasonably incurred by such party in connection with investigating, preparing to defend or defending any claim or Proceeding.

(g) The Company, the Selling Stockholders and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 11 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take account of the equitable considerations referred to in subsection (d) above. Notwithstanding the provisions of this Section 11, (i) no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by such Underwriter and distributed to the public were offered to the public exceeds the amount of any damage which such Underwriter has otherwise been required to pay by reason of such untrue statement or alleged untrue statement or omission or alleged omission and (ii) no Selling Stockholder shall be required to contribute any amount in excess of the net proceeds received by such Selling Stockholder from the Underwriters (net of underwriting discounts and commissions) from the sale of the Shares sold by such Selling Stockholder hereunder. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to this Section 11 are several in proportion to their respective underwriting commitments and not joint.

(h) The indemnity and contribution agreements contained in this Section 11 and the covenants, warranties and representations of the Company and the Selling Stockholders contained in this Agreement shall remain in full force and effect regardless of any partners, investigation made by or on behalf of any Underwriter, its directors and officers or any person (including each partner, officer or director of such person) who controls any Underwriter within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, or by or on behalf of the Company, its directors or officers, any Selling Stockholder or any person who controls the Company within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, and shall survive any termination of this Agreement or the issuance and delivery of the Shares. The Company, each Selling Stockholder and each Underwriter agree promptly to notify

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each other of the commencement of any Proceeding against it and, in the case of the Company, against any of the Company's officers or directors in connection

with the issuance and sale of the Shares, or in connection with the Registration Statement or Prospectus.

12. Notices. Except as otherwise herein provided, all statements, requests, notices and agreements shall be in writing or by telegram and, if to the Underwriters, shall be sufficient in all respects if delivered or sent to Warburg Dillon Read LLC, 299 Park Avenue, New York, N.Y. 10171-0026, Attention: Syndicate Department, if to the Company, shall be sufficient in all respects if delivered or sent to the Company at the offices of the Company at 549 Baltic Way, Sunnyvale, California 94089, Attention: Chief Financial Officer and, if to any of the Selling Stockholders, shall be sufficient in all respects if delivered or sent to the Representatives of the Selling Stockholders at 549 Baltic Way, Sunnyvale, CA 94089, Attention: Robin N. Dickson.

13. Governing Law; Construction. This Agreement and any claim, counterclaim or dispute of any kind or nature whatsoever arising out of or in any way relating to this Agreement ("Claim"), directly or indirectly, shall be governed by, and construed in accordance with, the laws of the State of New York. The Section headings in this Agreement have been inserted as a matter of convenience of reference and are not a part of this Agreement.

14. Submission to Jurisdiction. Except as set forth below, no Claim may be commenced, prosecuted or continued in any court other than the courts of the State of New York located in the City and County of New York or in the United States District Court for the Southern District of New York, which courts shall have jurisdiction over the adjudication of such matters, and the Company consents to the jurisdiction of such courts and personal service with respect thereto. The Company hereby consents to personal jurisdiction, service and venue in any court in which any Claim arising out of or in any way relating to this Agreement is brought by any third party against Warburg Dillon Read LLC or any indemnified party. Each of Warburg Dillon Read LLC and the Company (on its behalf and, to the extent permitted by applicable law, on behalf of its stockholders and affiliates) waives all right to trial by jury in any action, proceeding or counterclaim (whether based upon contract, tort or otherwise) in any way arising out of or relating to this Agreement. The Company agrees that a final judgment in any such action, proceeding or counterclaim brought in any such court shall be conclusive and binding upon the Company and may be enforced in any other courts in the jurisdiction of which the Company is or may be subject, by suit upon such judgment.

15. Parties at Interest. The Agreement herein set forth has been and is made solely for the benefit of the Underwriters, the Company, the Selling Stockholders and to the extent provided in Section 11 hereof the controlling persons, directors and officers referred to in Such Section, and their respective successors, assigns, heirs, pursuant representatives and executors and administrators. No other person, partnership, association or corporation (including a purchaser, as such purchaser, from any of the Underwriters) shall acquire or have any right under or by virtue of this Agreement.

16. Counterparts. This Agreement may be signed by the parties in one or more counterparts which together shall constitute one and the same agreement among the parties.

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17. Successors and Assigns. This Agreement shall be binding upon the Underwriters and the Company and their successors and assigns and any successor or assign of any substantial portion of the Company's and any of the Underwriters' respective businesses and/or assets.

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If the foregoing correctly sets forth the understanding among the Company, the Selling Stockholders and the Underwriters, please so indicate in the space provided below for the purpose, whereupon this letter and your acceptance shall constitute a binding agreement among the Company, the Selling Stockholders and the Underwriters, severally.

Very truly yours,

HARMONIC LIGHTWAVES, INC.

By: \_\_\_\_\_  
Anthony Ley  
Chief Executive Officer

THE SELLING STOCKHOLDERS NAMED IN  
SCHEDULE B ATTACHED HERETO

By: \_\_\_\_\_  
Attorney-in-Fact

Accepted and agreed to as of the date first above written, on behalf of  
themselves and the other several Underwriters named in Schedule A

WARBURG DILLON READ LLC  
CIBC OPPENHEIMER CORPORATION  
SG COWEN SECURITIES CORPORATION  
SOUNDVIEW TECHNOLOGY GROUP

By: WARBURG DILLON READ LLC

By: \_\_\_\_\_  
Title:

By: \_\_\_\_\_  
Title:

28.

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SCHEDULE A

Underwriter - _____	Number of Shares -----
WARBURG DILLON READ LLC CIBC OPPENHEIMER CORPORATION SG COWEN SECURITIES CORPORATION SOUNDVIEW TECHNOLOGY GROUP	
Total .....	=====

30

SCHEDULE B

Selling Stockholders - _____	Number of Firm Shares -----
Scientific-Atlanta, Inc.	720,000
N.M. New Media Entertainment, Ltd.	45,000
Anthony J. Ley	30,000
Robin N. Dickson	5,000
Total .....	800,000 =====

SCHEDULE C  
SIGNIFICANT SUBSIDIARIES

April 15, 1999

Harmonic Inc.  
549 Baltic Way  
Sunnyvale, California 94089

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have examined the Registration Statement on Form S-3 to be filed by Harmonic Inc. (the "Company") with the Securities and Exchange Commission on or about April 15, 1999 (the "Registration Statement") in connection with the registration under the Securities Act of 1933, as amended, of up to 3,220,000 shares of your Common Stock, including 2,420,000 shares to be sold by the Company (including 420,000 shares for which the Underwriters have been granted an over-allotment option) and up to 800,000 shares to be sold by certain selling stockholders (collectively, the "Shares.") As your counsel in connection with this transaction, we have examined the proceedings taken and are familiar with the proceedings proposed to be taken by you in connection with the issuance and sale of the Shares.

It is our opinion that the Shares are legally and validly issued, fully paid and non-assessable.

We consent to the use of this opinion as an exhibit to the Registration Statement, and further consent to the use of our name wherever appearing in the Registration Statement and any amendments thereto.

Very truly yours,

/s/ WILSON SONSINI GOODRICH & ROSATI

WILSON SONSINI GOODRICH & ROSATI  
Professional Corporation

## CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the use in the Prospectus constituting part of this Registration Statement on Form S-3 of our report dated January 20, 1999, except as to note 14, which is as of March 15, 1999 relating to the consolidated financial statements of Harmonic Inc., which appears in such Prospectus. We also consent to the references to us under the headings "Experts" and "Selected Consolidated Financial Data" in such Prospectus. However, it should be noted that PricewaterhouseCoopers LLP has not prepared or certified such "Selected Consolidated Financial Data."

PRICEWATERHOUSECOOPERS LLP

San Jose, California

April 15, 1999