

**IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA**

| | | |
|---------------------------------------|---|-------------------------------------|
| CBS BROADCASTING INC., et al., | : | |
| | : | |
| Plaintiffs, | : | |
| | : | |
| v. | : | Case No. 96-3650-CIV-Nesbitt |
| | : | |
| PRIMETIME 24 JOINT VENTURE, | : | |
| | : | |
| Defendant. | : | |
| | : | |

EXPERT WITNESS STATEMENT OF DR. CHRISTOPHER A. VELLTURO

I. ASSIGNMENT AND QUALIFICATIONS

I am a Vice President of National Economic Research Associates, Inc. (NERA), which is headquartered in White Plains, New York. NERA is a consulting firm specializing in microeconomic analysis. I received a Doctor of Philosophy degree (Ph.D.) in Economics from the Massachusetts Institute of Technology in Cambridge, Massachusetts in 1989. My fields of specialization include industrial organization and econometrics. My curriculum vitae (including all publications) is attached as Appendix 1.

I have extensive experience in the valuation of intellectual property and in the assessment of economic injury/damages sustained as a result of copyright/trademark/patent infringement. Industries which I have studied in this context include: consumer products, entertainment products and services, electronics, software, and many others. I have studied competition issues relating to over-the-air broadcast, cable, and satellite television. I also have extensive experience in designing, implementing and interpreting econometric analyses.

I was retained by Wilmer, Cutler & Pickering acting on behalf of plaintiff, CBS Inc., et al. ("Plaintiffs"), in connection with this litigation. I was asked to perform economic analyses to the economic impact stemming from PrimeTime 24 Joint Venture's ("PrimeTime 24" or "Defendant") alleged illegal distribution of its out-of-area network affiliate package for satellite television subscribers.

Based on my understanding of the law, this report is predicated upon a finding that defendants did illegally distribute the PrimeTime 24 package to some satellite TV subscribers.

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Furthermore, I was asked to evaluate the econometric study (and associated conclusions) provided by Dr. James N. Dertouzos as memorialized in his expert report on behalf of defendants ("Dertouzos Report").¹

In formulating my opinions, I have relied upon material provided to me in this litigation. A detailed list of these materials is provided in Appendix 2. I have also collected material available in the public domain, as set forth in Appendix 2. I have also relied upon my prior experience and research in the entertainment and consumer products industries generally, and, more specifically, my prior experience in television programming and delivery systems products. If additional materials are made available to me, I intend to review and update my report, if I am asked to do so.

II. CONCLUSIONS AND ANALYSIS

1. Dr. Dertouzos considered only Nielsen data relating to the viewing of local network stations, and did not consider readily available Nielsen data concerning the viewing of stations imported by PrimeTime 24. Nor did Dr. Dertouzos consider other pertinent and readily available facts. These data and facts not considered by Dr. Dertouzos show that PrimeTime 24 does in fact have a substantial harmful effect on local network affiliates.

2. I understand that PrimeTime 24 states that it had 2.9 million subscribers in the United States as of November 1997. I also understand, based on my review of the Expert Report of Paul Bortz², that PrimeTime 24's average penetration, across the roughly 211 Designated Market Areas ("DMAs") in the United States, was approximately 4.8% in November 1997, with penetrations in some DMAs above 12%. I further understand that in the most recent Nielsen sweeps period (February 1998), PrimeTime 24's CBS stations (WSEE and KPIX) had measurable ratings in some 169 DMAs; that in the average DMA, PrimeTime 24 had a .4 rating for its CBS stations, which on average, is 2.3% of the rating of the "inside" station in that DMA; and that PrimeTime 24's ratings amounted to more than 12% of the local station's ratings in one market. (All ratings data are for prime time.)

3. I further understand that PrimeTime 24 will sell network programming to anyone willing to make certain statements (such as "I do not receive an acceptable picture") over the phone, and that its recent new subscribers are heavily concentrated in urban and suburban areas, rather than in rural areas.

4. Dr. Dertouzos' conclusion that PrimeTime 24 is having no adverse impact on the ratings of local network affiliates could be true only if one assumed that, even though PrimeTime 24 is delivered to 4.8% of the households in the average DMA, none of these

¹ Expert Report of James N. Dertouzos, April 16, 1998.

² Expert Report of Paul Bortz.

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households (or none of those in any Nielsen sample) viewed less programming on their local network stations because of PrimeTime 24. Similarly, his conclusion that PrimeTime 24 had no adverse impact on the ratings of local network affiliates could be true only if one assumed that, even though PrimeTime 24 has an average rating for its CBS stations 2.3% of the rating of the local CBS station, none of this Nielsen-reported viewing of imported CBS stations came at the expense of the local CBS station. For several reasons, these assumptions are not credible.

5. Based on my review of the Expert Report of Jules Cohen³ and my knowledge of the television marketplace, I make the assumption that many PrimeTime 24 subscribers are able to receive broadcast network programming over the air. Since the great majority of recent PrimeTime 24 subscribers reside in urban and suburban areas, most of them have the option of subscribing to cable television. Viewers who obtain network programming over the air can, of course, receive only stations in their own area. In most instances, cable viewers likewise have access to network programming only from nearby network stations.

6. By subscribing to satellite services, consumers reveal that television represents a significant form of entertainment for them. By agreeing to pay an additional subscription fee of \$5-\$7 per month for the PrimeTime 24 network package, consumers further identify themselves as having a substantial interest in network programming. In the absence of satellite delivery of network programming, it is therefore highly likely that urban and suburban PrimeTime 24 subscribers would view network programming from their local stations, either over-the-air or by cable. Any viewing of network programming on PrimeTime 24 in these households, therefore, comes significantly at the expense of local network affiliates. (As discussed above, imported PrimeTime 24 stations do in fact have significant viewing levels in many DMAs.)

7. These reductions in local network affiliate ratings affect the advertising rates realized by affiliates and reduce the relative attractiveness of affiliate advertising when compared to the other advertising choices available to potential advertising customers.

8. Dr. Dertouzos' analysis is flawed in that it does not take any of the above data or observations into account. Furthermore, Dr. Dertouzos econometric study is fatally flawed in its own right, and therefore, any conclusions based upon this analysis are unfounded.

Dr. Dertouzos' Analysis

9. First, Dr. Dertouzos has compared two ratings periods (November and July) which, independently of the impact of PrimeTime 24, have extremely different viewing characteristics. The sampling error across regions associated with these differences, and the likely possibility that these effects vary systematically across DMAs, ensures a large amount of unexplained variation and creates potentially systematic errors in the regression. The result is a

³ Expert Report of Jules Cohen, April 15, 1998.

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model with little predictive power (as evidenced by the regression's low R-square statistic), and likely estimation bias.

10. Second, Dr. Dertouzos' selection of data sources introduces a potentially substantial, and unknown, measurement error: for unexplained reasons, he uses the change in PrimeTime 24 penetration between December 1996 and November 1997, and the change in local station viewership share from November 1996 to July 1997. Based on the data provided by PrimeTime 24 in discovery, I understand that approximately 45% of PrimeTime 24 subscribers who commenced service between December 1996 and November 1997 did so after July 1997. The impact of the additional subscribers, who subscribed to PrimeTime 24 between July 1997 and November 1997, obviously cannot be captured in the July 1997 Nielsen data.

11. Third, the coefficient estimate that purports to capture the effect of PrimeTime 24 on local network affiliate viewership share is measured with very little precision in Dr. Dertouzos' model. In econometric language, this means that the model has little power. This lack of power has significant implications. As Dr. Dertouzos indicates, he finds that the estimated (negative) impact of PrimeTime 24 penetration on local affiliate ratings is not statistically different from zero. Using the same information, Dr. Dertouzos would also find that he cannot reject the possibility that the true impact of PrimeTime 24 on local affiliate ratings is *ten times* the effect he estimates.

12. Fourth, and most fundamentally, in building his model Dr. Dertouzos assumes that the difference in the rate of PrimeTime 24 penetration across DMAs is the *only* factor that materially affects differences in the rate of change of affiliate network ratings across those DMAs. Clearly, this assumption cannot be correct. There are numerous other factors that are likely to affect differences in the rate of change of affiliate ratings across time periods. The exclusion of these other factors hopelessly confounds the interpretation of his results.

13. Among the factors likely to influence the rate of change of local affiliate shares across DMAs between different time period, I have identified the following at the present time:

- a. Penetration, price, and quality (and associated changes over time) relating to cable television programming options available *in each DMA*;
- b. Penetration, price, and quality (and associated changes over time) of satellite television delivery *in each DMA*;
- c. Penetration, price, and quality (and associated changes over time) of delivery of other imported network stations by satellite *in each DMA*; and

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d. The extent to which changes in PrimeTime 24 penetration in each DMA reflect acquisition of new households receiving imported network stations, as opposed to cannibalization of households receiving imported network stations from a competitor.⁴

14. To the best of my knowledge, the data that would be needed to construct a properly specified version of Dr. Dertouzos' analysis are not available. As discussed above, however, the harmful impact of PrimeTime 24 on local stations can be demonstrated much more directly through the relevant data and evidence discussed above.

15. I have testified at trial or deposition during the past four years in the following cases: *Hard Rock Café International (USA), Inc., (f/k/a Rank Licensing, Inc.), v. Peter A. Morton and Hard Rock Hotel, Inc.*, (U.S. District Court, Southern District of New York, C.A. No. 97-CIV-9483 (RPP)); *Wang Laboratories, Inc. v. FileNet Corporation* (U.S. District Court, District of Massachusetts, C.A. No. 94-12141); *Neles-Jamesbury, Inc. v. Fisher Controls International, Inc. and Fisher Service Company* (U.S. District Court, District of Massachusetts, C.A. No. 94-40200); *The Toro Company v. White Consolidated Industries, Inc. and WCI Outdoor Products, Inc.* (U.S. District Court, District of Minnesota, C.A. No. 4-95-656); *Polo Ralph Lauren, L.P.. v. The Magnin Company, Inc.* (American Arbitration Association Commercial Arbitration Tribunal, Case No. 74-181-1094-96); *Roll Systems, Inc. v. Wallace Computer Services Inc.* (U.S. District Court, District of Massachusetts, C.A. No. 94-10372-MEL); *Black & Decker (U.S.), Inc. and Black & Decker, Inc. v. The Coleman Co., Inc.* (U.S. District Court, Eastern District of Virginia, C.A. No. 96-656-A); *Century Wrecker Corporation v. Chevron, Inc.* (U.S. District Court, Western District of Pennsylvania, C.A. No.89-1452); *Federal Trade Commission v. New Balance Athletic Shoe, Inc.* (Boston, Massachusetts, File No. D9268); *Minnesota Mining and Manufacturing Co. v. Avery Dennison Corp.* (U.S. District Court, District of Minnesota, C.A. No. 4-93-1070); *Becton Dickinson and Co. and Becton Dickinson Vascular Access Inc. v. Critikon Inc.* (American Arbitration Association, Arbitration No. 13 133 00388 93); *Minnesota Mining and Manufacturing Co. v. Norton v. Bay State Abrasives Co.* (U.S. District Court, District of Delaware, C.A. No. 89-533 (JJF)). NERA is being compensated at my standard rate of \$350.00 per hour for my work on this matter.


Christopher A. Velturo

May 29, 1998

⁴ I understand, for example, that large dish ("C-band") subscribers can readily switch between PrimeTime 24 and Netlink as their source for satellite-delivered network stations. To the extent that an increase in PrimeTime 24 penetration in particular DMA is the product of this type of switching, one would not expect it to have nearly as much impact on local station ratings as the conversion of a household that did not previously have access to imported network stations.

APPENDIX 1

**NATIONAL ECONOMIC
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Cambridge, Massachusetts 02142
617-621-0444
christopher.vellturo@nera.com

Dr. Vellturo received a Sc.B. degree in Applied Mathematics/Economics *magna cum laude* from Brown University in Providence, Rhode Island. He earned a Ph.D. in Economics at Massachusetts Institute of Technology (MIT), specializing in Industrial Organization and Econometrics.

Since completing his degree, Dr. Vellturo has performed economic analysis and provided expert testimony in the context of mergers and acquisitions, antitrust litigation, intellectual property litigation, and other matters. He has provided economic analysis in over fifty mergers and acquisitions spanning a broad array of industries. He has appeared before the U.S. Department of Justice, the Federal Trade Commission, various states' Attorneys General offices, the Federal Reserve Bank Board of Governors, and various Federal Reserve Banks on merger-related issues. He has also appeared at hearings before the European Commission. Dr. Vellturo has performed economic analysis relating to litigation matters in more than twenty-five antitrust actions and more than seventy intellectual property actions. He has testified in U.S. District Court and before the American Arbitration Association.

Dr. Vellturo has published on issues relating to merger and acquisition related efficiencies, price discrimination, and market definition, among other topics. His writings have appeared in *Antitrust*, the *Antitrust Law Journal*, the *Journal of Economics and Management Strategy*, and the *Journal of Productivity Analysis*, among others.

EDUCATION:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Ph.D., Economics, 1989

Primary Fields: Econometrics, Industrial Organization
Secondary Fields: Public Finance, Game Theory, Law and Economics

BROWN UNIVERSITY
Sc.B., Applied Mathematics and Economics (*magna cum laude*), 1983

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EMPLOYMENT:

- 1996-Present **NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.**
Vice President. Direct research and provide expert testimony on a variety of microeconomic issues with particular emphasis on antitrust, intellectual property, and mergers and acquisitions. Expert reports and testimony presented in U.S. District Court. Presented antitrust economic analyses to Federal Trade Commission, U.S. Department of Justice, Federal Reserve Bank Board of Governors and the European Commission.
- 1991-1996 **CAMBRIDGE ECONOMICS, INC.**
Director. Directed research and provided expert testimony on a variety of microeconomic issues with particular emphasis on antitrust, intellectual property, and mergers and acquisitions. Prior expert testimony provided in U.S. District Court and before the American Arbitration Association. Presented antitrust economic analyses to U.S. Department of Justice, Federal Trade Commission (Antitrust Division), state Attorneys General offices, and the Federal Reserve Bank Board of Governors.
- 1989-1991 **NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.**
Senior Consultant. Directed and performed research relating to issues of antitrust, intellectual property, mergers and regulation.
- 1987 **DEPARTMENT OF ECONOMICS, M.I.T.**
Teaching Assistant. Undergraduate econometrics.
- 1985-89 **DEAN ANN F. FRIEDLAENDER, M.I.T.**
Research Associate. Participated in research relating to transportation pricing and capital allocation responses to regulatory changes.
- 1983-85 **NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.**
Research Associate. Conducted research on a wide variety of issues including antitrust, railroad rate setting, optimal landfill pricing, and PCB and asbestos abatement strategies.

AWARDS AND PROFESSIONAL ACTIVITIES:

Recipient, Bradley Fellowship in Public Economics, 1987 and 1988-89

M.I.T. Departmental Fellowship, 1986

Phi Beta Kappa, Brown University, 1983

Sigma Xi, Brown University, 1983

Journal Referee for *American Economic Review* and *Rand Journal of Economics*

Member, American Economic Association

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PAPERS/PUBLICATIONS/REPORTS/PRESENTATIONS:

"What Drives Consolidation?" Presented at the 28th Semiannual Members Meeting MIT/CRE, Cambridge, MA, May 14, 1998.

"Proving Unilateral Effects and Efficiencies in Merger Cases: A Demonstration." Presented at the 46th Annual ABA Antitrust Meeting, Washington, DC, April 1, 1998.

"Creating An Effective Diversion: Evaluating Mergers With Differentiated Products," Antitrust, Spring 1997.

"Economic Battles in the Antitrust Wars: Network Industries and Their Relevance to Antitrust in the Computer Industry." Presented at the Washington State Bar Association's Thirteenth Annual Antitrust, Consumer Protection and Unfair Business Practices Conference, November 8, 1996.

"Differentiated Products: New Tools for New Methods." Presented at NERA's Seventeenth Annual Antitrust & Trade Regulation Seminar, Santa Fe, NM, July 5, 1996.

"Market Definition Under Price Discrimination" (with J. A. Hausman and G. K. Leonard), Antitrust Law Journal, Vol. 64, No. 2 (Winter 1996).

"Learning-by-Doing in the Context of Antitrust Analysis" (with J. Hausman), April 1995.

"An Economic Analysis of ATM Surcharging," prepared for Southeast Switch Inc., October 5, 1995.

"Cost Effects of Mergers and Deregulation in the U.S. Rail Industry" (with Berndt et al.), Productivity Issues in Services at the Micro Level, ed. Zvi Griliches and Jacques Mairesse, Kluwer Academic Publishers, 1993.

"Cost Effects of Mergers and Deregulation in the U.S. Rail Industry" (with Berndt et al.), Journal of Productivity Analysis, 4, 127-144, 1993.

"Rail Costs and Capital Adjustments in a Quasi-Regulated Environment" (with Friedlaender et al.), Journal of Transport Economics and Policy, 131-152, May 1993.

"Deregulation, Mergers and Cost Savings in Class I U.S. Railroads, 1974-1986" (with Berndt et al.), Journal of Economics and Management Strategy, Vol. 1, No. 2, 1992.

"Observations on Pre-Trial Bargaining Models," MIT Mimeo, September 1989.

"The Deregulation of the U.S. Rail Industry: Efficiency and Equity in Attaining Rail Viability," Ph.D. Dissertation, Department of Economics, MIT, 1989.

"Achieving Cost Efficiency Through Merger: Evidence from the U.S. Rail Industry," Presented at the American Economic Association Symposium on Mergers and Acquisitions, New York, December 29, 1988.

- 4 -

PREVIOUS DISTRICT COURT TESTIMONY (PAST FOUR YEARS):

Hard Rock Café International (USA), Inc., (f/k/a Rank Licensing, Inc.), v. Peter A. Morton and Hard Rock Hotel, Inc. (U.S. District Court, Southern District of New York, C.A. No. 97-CIV-9483 (RPP)).

Wang Laboratories, Inc. v. FileNet Corporation (U.S. District Court, District of Massachusetts, C.A. No. 94-12141).

Neles-Jamesbury, Inc. v. Fisher Controls International, Inc. and Fisher Service Company (U.S. District Court, District of Massachusetts, C.A. No. 94-40200).

The Toro Company v. White Consolidated Industries, Inc. and WCI Outdoor Products, Inc. (U.S. District Court, District of Minnesota, C.A. No. 4-95-656).

Polo Ralph Lauren, L.P., v. The Magnin Company, Inc. (American Arbitration Association Commercial Arbitration Tribunal, Case No. 74-181-1094-96).

Roll Systems, Inc. v. Wallace Computer Services Inc. (U.S. District Court, District of Massachusetts, C.A. No. 94-10372-MEL).

Black & Decker (U.S.), Inc. and Black & Decker, Inc. v. The Coleman Co., Inc. (U.S. District Court, Eastern District of Virginia, C.A. No. 96-656-A).

Century Wrecker Corporation v. Chevron, Inc. (U.S. District Court, Western District of Pennsylvania, C.A. No. 89-1452).

Federal Trade Commission v. New Balance Athletic Shoe, Inc. (Boston, Massachusetts, File No. D9268).

Minnesota Mining and Manufacturing Co. v. Avery Dennison Corp. (U.S. District Court, District of Minnesota, C.A. No. 4-93-1070).

Becton Dickinson and Co. and Becton Dickinson Vascular Access Inc. v. Critikon Inc. (American Arbitration Association, Arbitration No. 13 133 00388 93).

Minnesota Mining and Manufacturing Co. v. Norton v. Bay State Abrasives Co. (U.S. District Court, District of Delaware, C.A. No. 89-533 (JJF)).

AFFIDAVITS

Expert Report in connection with *Becton Dickinson and Company v. Syntron BioResearch, Inc.* (U.S. District Court, Southern District of California, C.A. No. 97CV1634K), May 1998.

Expert Report in connection with *Luigino's, Inc. v. Pezrow Company, Inc. and Pezrow Company of New Jersey, Inc.* (C.A. No. 5-96-244, U.S. District Court, District of Minnesota Fifth Division), October 1997.

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Supplemental Expert Report in connection with *Neles-Jamesbury, Inc. v. Fisher Controls International, Inc. and Fisher Service Company* (C.A. No. 94-40200, U.S. District Court, District of Massachusetts), October 1997.

Expert Report in connection with *Neles-Jamesbury, Inc. v. Fisher Controls International, Inc. and Fisher Service Company* (C.A. No. 94-40200, U.S. District Court, District of Massachusetts), August 1997.

Expert Report in connection with *The Toro Company v. White Consolidated Industries, Inc. et al.* (C.A. No. 4-95-656, U.S. District Court, District of Minnesota), May 1997.

Supplemental Expert Report in connection with *Century Wrecker Corporation v. Chevron, Inc.* (C.A. No. 89-1452, U.S. District Court, Western District of Pennsylvania), May 1997.

Supplemental Rebuttal Expert Report in connection with *Polo Ralph Lauren, L.P. v. The Magnin Company, Inc.* (Case No. 74-181-1094-96, American Arbitration Association Commercial Arbitration Tribunal), May 1997.

Rebuttal Expert Report in connection with *Polo Ralph Lauren, L.P. v. The Magnin Company, Inc.* (Case No. 74-181-1094-96, American Arbitration Association Commercial Arbitration Tribunal), May 1997.

Expert Report in connection with *Wang Laboratories, Inc. v. FileNet Corporation.* (C.A. No. 94-12141 RLC, U.S. District Court, District of Massachusetts), April 1997.

Affidavit in Support of Ag-Chem Equipment Co. Inc. and Soil Teq, Inc.'s Motion For Summary Judgment. (U.S. District Court, District of Minnesota, C.A. No. 4-93-1228), August 1996.

Expert Report and Supplemental Expert Report in connection with *Roll Systems, Inc. v. Wallace Computer Services Inc.* (C.A. No. 94-10372-MEL, U.S. District Court, District of Massachusetts), July 1996 and December 1996.

Expert Report in connection with *Dynamic Manufacturing Inc. et al. v. Chevron Inc.* (C.A. No. 2:95cv947, U.S. District Court, Eastern District of Virginia), April 1996.

Expert Report in connection with *Century Wrecker Corp. v. Chevron Inc.* (C.A. No. 89-1452, U.S. District Court, Western District of Pennsylvania), March 1996.

Expert Report in connection with *Medtronic v. Pacesetter and St. Jude Medical Inc.* (American Arbitration Association), February 1996.

Expert Report in connection with *Cedar Ridge Trailer Sales et al. v. National Community Bank of New Jersey et al.* (C.A. No. BER-L-09277-92, Superior Court of New Jersey), December 1995.

Expert Report in connection with *Federal Trade Commission v. New Balance Athletic Shoe, Inc.* (Boston, Massachusetts, File No. D9268), 1995.

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Expert Report in connection with *Minnesota Mining and Manufacturing Co. v. Avery Dennison Corp.* (U.S. District Court, District of Minnesota, C.A. No. 4-93-1070), 1995.

Expert Report in connection with *Minnesota Mining and Manufacturing Co. v. Norton v. Bay State Abrasives Co.* (U.S. District Court, District of Delaware, C.A. No. 89-533 (JJF)), 1994.

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- Banking/EFT Networks (ATM/POS networks, Thrifts; Transfer Services)
- Cable Television Services
- Glassware
- Seafood
- Produce
- Breakfast Cereals
- Footwear
- Diapers
- Cigarettes
- Car Wax
- Personal Computers
- Contact Lens Care Products
- Prescription Drugs
- Spinal Implants
- Angioplasty Catheters
- Intravascular Ultrasound
- Infusion Pumps
- Pacemakers and Defibrillators
- Prescription Benefits Services
- PTCA Catheters
- Fiberglass Casting Products
- Catheter Dressings, Catheters
- Hemodialysis Catheters (Mahurkar)
- Continuous Blood Pressure Monitoring Devices
- Home Pregnancy Testing Kits and Related Technologies
- Magnetic Resonance Imaging (MRI) Devices and Contrast Agents
- Diabetes Testing Devices
- Legal/Financial Publications and CD ROM Titles
- Domestic and Commercial Circuit Breakers
- Heating, Ventilation, and Air Conditioning (HVAC) Systems
- Check Verification Services; Credit Card Processing Services, EFT Product Services
- Industrial Cleaning Products and Services
- Printing
- Paperboard
- Aluminas and Related Compounds
- Manmade Fibers (Nylon and Polyester)
- Fertilizer
- Cable Services and Programming; Entertainment; Sports Programming
- Printed Circuit Board Assembly Equipment
- Food Metal Cans
- Flight Simulators
- Airlines
- Airline Computer Reservation Systems
- Microprocessors/DRAMs/EPROMs
- Fertilizer Equipment
- Wholesale Financing Services - Motor Homes
- Natural Gas
- Photocopiers
- Telecommunications Equipment and Services
- Precision Weighing and Measuring Instruments
- Single Inline Memory Modules (SIMMS)

- Metal Can Interior Coatings
- Gypsum Board
- Industrial Grinding Products
- Flexographic Printing Plates
- Facsimile Machines
- Chemiluminescent Technologies
- Photography Products
- Automotive Products
- Industrial Diamonds
- Cosmetics
- Car Carriers and Wreckers
- Cellular Telephones
- Flashlights
- High Speed Printing and Processing Equipment
- Data Collection and Related Applications Technologies
- Toys
- Retail Garments and Accessories
- Industrial Valves
- Lawn and Garden Equipment

APPENDIX 2

APPENDIX 2

List of documents relied upon:

1. PrimeTime 24 Subscribers by DMA (PTM 010251-PTM 010269).
2. *Nielsen TV, Special Report For Primetime 24-East*, NielsenStation Index, May 1997 (PTM 10845-PTM 10989).
3. *Nielsen TV, Special Report For Primetime 24-East*, NielsenStation Index, July 1997 (PTM 10990-PTM 10991).
4. *Introducing PrimeTime 24*, presentation by Airtime.
5. *Frequently Asked Questions About PrimeTime 24*, Airtime.
6. PrimeTime 24 DMA Coverage, table.
7. Selection of magazine and newspaper advertisements.
8. CBS Inc; Fox Broadcasting Co.; CBS Television Affiliates Association; Post-Newsweek Stations Florida, Inc.; KPAX Communications, Inc.; LWWI Broadcasting, Inc.; and Retlaw Enterprises, Inc., Plaintiffs, vs. PrimeTime 24 Joint Venture, Defendant. *Order Affirming in Part and Reversing in Part Magistrate Judge Johnson's Report and Recommendation*, United States District Court Southern District of Florida, Case No. 96-3650-CIV-Nesbitt, May 13, 1998.
9. CBS Inc.; Fox Broadcasting Co.; Group W/CBS Television Partners; CBS Television Affiliates Association; Post-Newsweek Stations Florida, Inc.; KPAX Communications, Inc.; LWWI Broadcasting, Inc.; and Retlaw Enterprises, Inc, Plaintiffs, v. PrimeTime 24 Joint Venture, Defendant. *Amended Complaint*, In the United States District Court for the Southern District of Florida, Case No. 96-3650-CIV-Nesbitt, May 27, 1997.
10. CBS Broadcasting, Inc., et al., Plaintiffs, v. PrimeTime 24 Joint Venture, Defendant. *Expert Report of Jules Cohen*, United States District Court Southern District of Florida, CIV-Nesbitt No. 96-3650, April 15, 1998.
11. CBS Broadcasting, Inc., et al., Plaintiffs, v. PrimeTime 24 Joint Venture, Defendant. *Expert Report of James N. Dertouzos*, United States District Court Southern District of Florida, CIV-Nesbitt No. 96-3650, April 16, 1998.
12. CBS Broadcasting, Inc., et al., Plaintiffs, v. PrimeTime 24 Joint Venture, Defendant. *Expert Report of Paul Bortz*, United States District Court Southern District of Florida, CIV-Nesbitt No. 96-3650.

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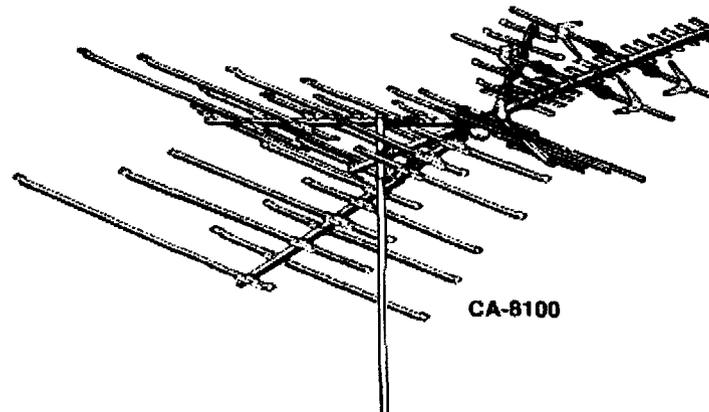
13. CBS Broadcasting, Inc., et al., Plaintiffs, v. PrimeTime 24 Joint Venture, Defendant. *Expert Report of Robert C. Springer, III*, United States District Court Southern District of Florida, CIV-Nesbitt No. 96-3650, April 15, 1998.
14. www.primetime24.com
15. www.superstar.com
16. www.directv.com
17. www.hbodirect.com
18. www.dishnetwork.com
19. www.skyreport.com
20. www.tvb.org
21. The Kagan Media Index, April 17, 1998, p. 14.
22. A.C. Nielsen Co. Cable TV Household Estimates, *TV & Cable Factbook No. 62*, 1994 Edition, pp. I-22 and I-23.
23. A.C. Nielsen Co. Cable TV Household Estimates, *TV & Cable Factbook No. 63*, 1995 Edition, pp. I-22 and I-23.
24. A.C. Nielsen Co. Cable TV Household Estimates, *TV & Cable Factbook No. 64*, 1996 Edition, pp. I-20 and I-21.
25. A.C. Nielsen Co. Cable TV Household Estimates, *TV & Cable Factbook No. 65*, 1997 Edition, pp. I-20 and I-21.
26. A.C. Nielsen Co. Cable TV Household Estimates, *TV & Cable Factbook No. 66*, 1998 Edition, pp. I-20 and I-21.

E



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| Model & Description | List Price |
|------------------------------------|------------|
| CA-4052 - Chromstar VHF Antenna | \$106.12 |
| CA-4053 - Chromstar VHF Antenna | \$129.42 |
| CA-5242 - Chromstar VHF Antenna | \$204.22 |
| CA-7078 - Chromstar V/U Antenna | \$ 99.75 |
| CA-7080 - Chromstar V/U Antenna | \$117.45 |
| CA-7082 - Chromstar V/U Antenna | \$144.45 |
| CA-7084 - Chromstar V/U Antenna | \$184.12 |
| CA-7210 - Ghost Killer V/U Antenna | \$ 84.35 |
| CA-8098 - Chromstar V/U Antenna | \$202.35 |

Winegard's Prostar® 1000 Product Specifications

The chart below will help you select the Winegard antenna best for your viewing area. Remember, these ratings are based on optimum conditions on unobstructed terrain. Type of terrain and weather conditions will influence your selection of an antenna.

| Area Designation | For VHF | For UHF | Boom Length | No. of Elements |
|------------------|------------|-----------|-------------|-----------------|
| Deepest Fringe | 100+ Miles | 60+ Miles | 170'+ | 70+ |
| Deep Fringe | 100 Miles | 60 Miles | 160'-170' | 48-60 |
| Fringe | 80 Miles | 45 Miles | 135'-150' | 40-45 |
| Near Fringe | 60 Miles | 35 Miles | 110'-130' | 35-40 |
| Far Suburban | 50 Miles | 35 Miles | 80'-100' | 30-35 |
| Suburban | 45 Miles | 30 Miles | 60'-75' | 20-30 |
| Far Metropolitan | 30 Miles | 25 Miles | 40'-60' | 15-20 |
| Metropolitan | 25 Miles | 15 Miles | 33"-40" | 10-15 |

Product: Active Elements Boom Length Turning Radius Maximum Width Height Sh

VHF Antennas:

| | | | | | |
|---------|----|---------|--------|--------|------|
| PR-5000 | 8 | 40.25" | 52.75" | 99.75" | 5.0" |
| PR-5020 | 14 | 96.00" | 65.5" | 110" | 3.0" |
| PR-5030 | 17 | 119.50" | 73.5" | 110" | 3.0" |
| PR-5040 | 23 | 173.50" | 104.5" | 110" | 3.0" |

FM Antennas:

| | | | | | |
|---------|----|---------|--------|-------|-------|
| CA-6065 | 10 | 127.00" | 76.4" | 69" | - |
| PR-6000 | 10 | 127.00" | 76.4" | 69" | 31.6" |
| PR-6010 | 4 | 33.00" | 37.25" | 65.5" | 3.0" |

V/U Channels 2 - 69:

| | | | | | |
|---------|----|---------|-------|---------|-------|
| PR-7000 | 10 | 32.75" | 50.0" | 99.75" | 3.0" |
| PR-7005 | 15 | 39.90" | 58.5" | 109.75" | 13.5" |
| PR-7010 | 22 | 66.50" | 62.0" | 109.75" | 19.0" |
| PR-7015 | 31 | 87.75" | 66.5" | 110" | 25.5" |
| PR-7032 | 33 | 103.25" | 99.0" | 110" | 25.5" |
| PR-7037 | 39 | 123.75" | 75.0" | 110" | 32.5" |
| PR-7042 | 43 | 149.75" | 89.0" | 110" | 32.5" |
| PR-7052 | 49 | 170.25" | 99.0" | 110" | 33.0" |

UHF Channels 14 - 69:

| | | | | | |
|---------|----|--------|-------|-----|-------|
| PR-9018 | 20 | 86.00" | 30.0" | 15" | 25.5" |
| PR-9022 | 26 | 49.75" | 59.0" | 15" | 25.5" |
| PR-9032 | 3 | 74.75" | 80.0" | 15" | 32.0" |
| AT-8761 | 23 | 56.50" | 29.0" | 15" | 28.0" |

Broadband YAGIS:

| | | | | | |
|---------|----|---------|-------|------|------|
| YA-1026 | 10 | 160.0" | 96.0" | 110" | 5.0" |
| YA-1713 | 10 | 99.875" | 62.0" | 35" | 3.0" |
| YA-6260 | 6 | 87.0" | 72.0" | 110" | 3.0" |

YA-6713

6

49.875"

34.0"

35"

3.0"

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Winegard's Chromstar® 2000 Product Specifications

The chart below will help you select the Winegard antenna best for your viewing area. Remember, these ratings are based on optimum conditions on unobstructed terrain. Type of terrain and weather conditions will influence your selection of an antenna.

| Area Designation | For VHF | For UHF | Boom Length | No. of Elements |
|------------------|------------|-----------|-------------|-----------------|
| Deepest Fringe | 100+ Miles | 60+ Miles | 170'+ | 70+ |
| Deep Fringe | 100 Miles | 60 Miles | 160'-170' | 48-60 |
| Fringe | 80 Miles | 45 Miles | 135'-150' | 40-45 |
| Near Fringe | 60 Miles | 35 Miles | 110'-130' | 35-40 |
| Far Suburban | 50 Miles | 35 Miles | 80'-100' | 30-35 |
| Suburban | 45 Miles | 30 Miles | 60'-75' | 20-30 |
| Far Metropolitan | 30 Miles | 25 Miles | 40'-60' | 15-20 |
| Metropolitan | 25 Miles | 15 Miles | 33'-40' | 10-15 |

Product: Active Elements Boom Length Turning Radius Maximum Width Height Sh

V/U Channels 2 - 69:

| | | | | | |
|---------|----|--------|-------|------|-------|
| CA-8200 | 71 | 177.5" | 99.1" | 110" | 31.6" |
| CA-8100 | 79 | 164.0" | 81.8" | 110" | 45.8" |
| CA-8098 | 68 | 136.0" | 68.1" | 108" | 36.0" |
| CA-7210 | 25 | 86.0" | 65.8" | 112" | - |
| CA-7084 | 68 | 131.0" | 80.1" | 110" | 25.2" |
| CA-7082 | 50 | 110.5" | 70.6" | 110" | 19.3" |
| CA-7080 | 39 | 90.0" | 61.7" | 110" | 19.3" |
| CA-7078 | 29 | 64.5" | 57.9" | 110" | 13.6" |

VHF Channels 2 - 13:

| | | | | | |
|---------|----|---------|--------|------|------|
| CA-5254 | 36 | 186.75" | 115.9" | 110" | 6.0" |
| CA-4053 | 24 | 111.0" | 72.0" | 110" | 3.0" |
| CA-4052 | 19 | 78.5" | 61.7" | 110" | 3.0" |

UHF Channels 14 - 69:

| | | | | | |
|---------|----|--------|-------|--------|-------|
| CA-9065 | 19 | 49.75" | 48.0" | 15" | 13.6" |
| CA-9085 | 31 | 74.75" | 73.0" | 25.75" | 25.2" |
| CA-9095 | 39 | 94.75" | 93.0" | 25.75" | - |

FM:

| | | | | | |
|---------|----|--------|-------|-------|---|
| CA-6065 | 10 | 127.0" | 76.4" | 69.0" | - |
|---------|----|--------|-------|-------|---|

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Winegard's DirecStar® Product Specifications

The chart below will help you select the Winegard antenna best for your viewing area. Remember, these ratings are based on optimum conditions on unobstructed terrain. Type of terrain and weather conditions will influence your selection of an antenna.

| Area Designation | For VHF | For UHF | Boom Length | No. of Elements |
|------------------|------------|-----------|-------------|-----------------|
| Deepest Fringe | 100+ Miles | 60+ Miles | 170'+ | 70+ |
| Deep Fringe | 100 Miles | 60 Miles | 160'-170' | 48-60 |
| Fringe | 80 Miles | 45 Miles | 135'-150' | 40-45 |
| Near Fringe | 60 Miles | 35 Miles | 110'-130' | 35-40 |
| Far Suburban | 50 Miles | 35 Miles | 80'-100' | 30-35 |
| Suburban | 45 Miles | 30 Miles | 60'-75' | 20-30 |
| Far Metropolitan | 30 Miles | 25 Miles | 40'-60' | 15-20 |
| Metropolitan | 25 Miles | 15 Miles | 33'-40' | 10-15 |

VHF/UHF/FM Antennas:

- **DS-7150**

Active Elements: 32 **Average Gain:** CH 2, 4, 6 - 5.8 dB; CH 7, 9, 11, 13 - 9.72 dB; CH 14, 32, 50, 69 - 11.15 dB
Dimensions: 149.5"L x 110"W x 32.5"H **Turning Radius:** 89" **Packaging:** 2 Per Carton **Weight:** 28 lbs.

- **DS-7088**

Active Elements: 31 **Average Gain:** CH 2, 4, 6 - 3.5 dB; CH 7, 9, 11, 13 - 7.5 dB; CH 14, 32, 50, 69 - 9.1 dB
Dimensions: 87.5"L x 110"W x 25.5"H **Turning Radius:** 66.5" **Packaging:** 3 Per Carton **Weight:** 25 lbs.

- **DS-7067**

Active Elements: 22 **Average Gain:** CH 2, 4, 6 - 2.6 dB; CH 7, 9, 11, 13 - 6.8 dB; CH 14, 32, 50, 69 - 7.9 dB
Dimensions: 66.55"L x 109.75"W x 19"H **Turning Radius:** 62" **Packaging:** 4 Per Carton **Weight:** 24 lbs.

- **DS-7055**

Active Elements: 14 **Average Gain:** CH 2, 4, 6 - 2.6 dB; CH 7, 9, 11, 13 - 6.8 dB; CH 14, 32, 50, 69 - 7.11 dB
Dimensions: 55"L x 100"W x 3"H **Turning Radius:** 52" **Packaging:** 3 Per Carton **Weight:** 12 lbs.

- **DS-7042**

Active Elements: 11 **Average Gain:** CH 2, 4, 6 - 1.5 dB; CH 7, 9, 11, 13 - 5.0 dB; CH 14, 32, 50, 69 - 5.2 dB
Dimensions: 42"L x 109.75"W x 3"H **Turning Radius:** 58" **Packaging:** 4 Per Carton **Weight:** 14 lbs.

- **DS-7033**

Active Elements: 10 **Average Gain:** CH 2, 4, 6 - 1.0 dB; CH 7, 9, 11, 13 - 5.0 dB; CH 14, 32, 50, 69 - 5.2 dB
Dimensions: 33"L x 99.75"W x 3"H **Turning Radius:** 50" **Packaging:** 4 Per Carton **Weight:** 11.5 lbs.

UHF Antennas:

- **DS-8050**

Active Elements: 20 **Average Gain:** CH 14, 32 - 13.9 dB; CH 50, 69 - 10.8 dB
Dimensions: 50"L x 15"W x 25.5"H **Turning Radius:** 30" **Packaging:** 2 Per Carton **Weight:** 9.5 lbs.

- **DS-8040**

Active Elements: 8 **Average Gain:** CH 14, 32 - 8.3 dB; CH 50, 69 - 7.8 dB
Dimensions: 40"L x 15"W x 4"H **Turning Radius:** 38" **Packaging:** 4 Per Carton **Weight:** 7.5 lbs.

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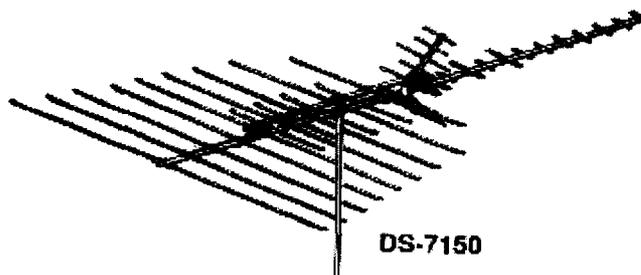


DirecStar®

The DirecStar® line is built with the same high quality as our Prostar line of antennas.

Bulk Pack Information for these antennas is included in the specifications.

ALL DIRECSTAR BULK PACK ANTENNAS SHIP UPS!



Click this image to see specifications for all DirecStar® Antennas.

PLACE AN ORDER

| Model & Description | List Price |
|--|------------|
| DS-7033 - VHF/UHF/FM DirecStar Antenna | \$ 29.30 |
| DS-7042 - VHF/UHF/FM DirecStar Antenna | \$ 36.20 |
| DS-7055 - VHF/UHF/FM DirecStar Antenna | \$ 35.90 |
| DS-7067 - VHF/UHF/FM DirecStar Antenna | \$ 48.92 |
| DS-7088 - VHF/UHF/FM DirecStar Antenna | \$ 64.20 |
| DS-7150 - VHF/UHF/FM DirecStar Antenna | \$114.52 |
| DS-8040 - UHF DirecStar Antenna | \$ 20.37 |
| DS-8050 - UHF DirecStar Antenna | \$ 36.60 |

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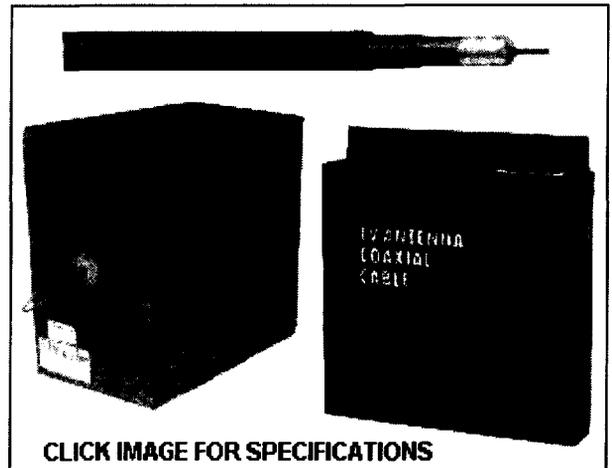
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Cable

Low-loss coaxial cable minimizes signal loss due to moisture and reduces termination time. Laminated aluminum foil shield provides 100% physical coverage, good flexibility and flex life at relatively low cost. The braid shield adds increased protection against interference plus good conductivity, flexibility and tensile strength.

- [75 Ohm Coaxial Cable - Cut Lengths](#)
- [75 Ohm Coaxial Cable - Bulk Quantity](#)

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Cut Lengths - 75 Ohm Coaxial Cable - Ready-to-use with connectors installed.

CX-0008 - 8' RG-59 cable/connectors - Blister Pack

CX-0025 - 25' RG-59 cable/connectors - Display Carton

CX-0050 - 50' RG-59 cable/connectors - Display Carton

CX-0100 - 100' RG-59 cable/connectors - Display Carton

CX-0625 - 25' RG-6 cable/weatherproof connectors - Display Carton

CX-0675 - 75' RG-6 cable/weatherproof connectors - Display Carton

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Bulk Quantity Cable

CL-2600 - 1 Unreel Carton of 1000' 75 ohm coaxial cable, RG-6.

CL-2700 - 1 Unreel Carton of 1000' 75 ohm coaxial cable, RG-59.

CL-2701 - 1 skid of 20 bulk units coaxial cable (20,000 total feet) plus 1 plastic cable dispenser.

CABLE ATTENUATION (Cable Loss Per 100')

| CABLE TYPE | 5 MHz | 100 MHz | 300 MHz | 450 MHz | 900 MHz | 1450 MHz |
|------------------------|---------|---------|---------|----------|---------|----------|
| CL-2600 RG-6 | .65 dB | 1.98 dB | 3.38 dB | 4.21 dB | 6.14 dB | 8.26 dB |
| CL-2700 RG-59/U | 1.09 dB | 2.60 dB | 4.45 dB | 5.440 dB | 8.65 dB | 10.0 dB |

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PRICE LIST:

Model & Description

Last Price

ORDER

CX-0008 - COAX CABLE KIT, RG-59, 8' \$ 9.03

CX-0025 - COAX CABLE KIT, RG-59, 25' \$ 14.15

CX-0050 - COAX CABLE KIT, RG-59, 50' \$ 21.03

CX-0100 - COAX CABLE KIT, RG-59, 100' \$ 32.53

MAIN PAGE

CX-0625 - COAX CABLE KIT, RG-6, 25' - [call for price]

CX-0675 - COAX CABLE KIT, RG-6, 75' - [call for price]

EMAIL

CL-2600 - COAX CABLE 1000', RG-6 \$134.95

CL-2700 - COAX CABLE 1000', RG-59 \$129.95

CL-2701 - COAX CABLE REEL, BULK \$120.00

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75 Ohm Coaxial Cable Specification

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| | |
|---|--|
| NOMINAL ATTENUATION (in dB per 100) | Ch. 2, 13, 14, 48, 83 2.2, 4.4, 6.5, 8.0, 8.7 |
| IMPEDANCE | 75 ohm |
| DC LOOP RESISTANCE | 5.1 ohms (per 100) |
| OUTSIDE DIAMETER | .242" |
| CENTER CONDUCTOR | 20 AGW Copperweld |
| CONNECTOR | FC-5900 |
| JACKET | Gray Vinyl |
| VELOCITY OF PROPAGATION | 78% |
| DIELECTRIC | Cellular Polyethylene |
| SHIELD | DuPont plus 40% Alum. Braid |



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F

Buy a RadioShack Antenna, Get Your Local Channels Free

An antenna is your link to free over-the-air broadcast TV. RadioShack offers a wide selection, with models for virtually any situation. We're also your source for hookup needs—masts, mounts, cable and connectors. We have it all, including advice from our friendly experts—people who know the reception conditions in your area. RadioShack is the place to go for answers to questions like these: Will an indoor antenna work? What are the advantages of an outdoor antenna, a booster, a rotator? Is satellite a better choice than cable? What about pay-per-view and parental locks? Is there a way to "share" my satellite receiver with a second TV? For answers, visit the RadioShack store near you.

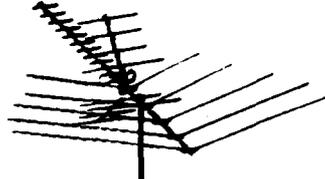
Now more than ever, a new TV antenna is an excellent investment—even if you have cable TV

In many locations, a RadioShack indoor or outdoor antenna can deliver local reception as good as or better than cable TV. What's more, over-the-air TV is free and better than ever. There are three reasons. First, in many areas, there are more TV stations—some that your cable service may not carry. Second, thanks to new technology, many TV stations send a sharper, stronger signal. Third, and probably most important, a TV antenna assures you of at least some TV reception if your cable service is interrupted. When cable goes "down" or when you signal to a local channel that cable doesn't carry, simply switch to your antenna with an easy-to-install A/B switch. See page 161.



Professional installation is now available

Although you can install a TV antenna & satellite dish yourself, convenient installation by bonded, insured technicians is also available through RadioShack. Service is fast and prices are reasonable—especially when you consider the cost of your time and special tools you might need.



Restrictions on outdoor antennas and small satellite dishes—gone!

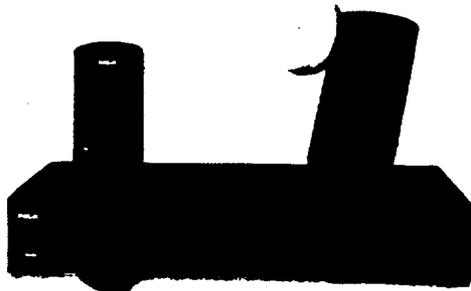
Here's good news for people who want the economy and superior performance of an outdoor TV antenna. In most cases, deeds, local laws and homeowner association rules restricting outdoor antennas are no longer valid. In fact, a property owner (or a renter with the landlord's written permission) now has the right to install an outdoor antenna—and a satellite dish up to 39 inches in diameter, too. This is a federal (FCC) ruling enforcing an Act of the U.S. Congress*. The only exceptions are in some historical areas and when safety is a factor. For example, an antenna or wiring that blocks a fire escape is NOT permitted. And local rules can still limit masts or poles to a height of 12 feet.



Big selection of Indoor antennas

If you live near the transmitters of local stations, an indoor antenna might be all you need for good over-the-air TV reception. However, an indoor antenna will never perform as well as a properly installed outdoor antenna. And an indoor antenna usually needs to be adjusted for best results on some channels.

While non-amplified indoor antennas often work well, an amplified model is usually the best choice. Most have a switch that lets you "kick in" the amplifier on weak or hard-to-get channels. See pages 154-155.



Satellite accessories and upgrades

RadioShack is THE place to go when you need parts and upgrades for your DSS system—no matter where you bought it. Need a replacement LNB or a dual LNB to feed a second receiver? Our experts will help you select what you need and arrange for fast shipment direct to your door. See page 141 of this catalog for a partial listing of DSS replacements and upgrades.

RadioShack is also your nearby source of accessories to improve your DSS, PRIMESTAR or other satellite system. You'll find handy products such as A/B selector switches, "whole house" remote controls, even wired and wireless systems to send satellite channels to the other TVs in your home. See pages 148-149.

Do-it-yourself TV antenna installation

Install it yourself with RadioShack masts, mounts and hardware. Our wide selection means you'll never have to run around town or make do with parts that "almost" match.

We have the right products for virtually any installation job—including mounts for specific types of installations and a huge in-store selection of hardware and accessories. See page 158.



Special-purpose antennas

Ever taken a TV on a camping trip, hoping to catch a favorite show or an important game, but ended up with an unwatchable picture? Have you ever been frustrated trying to pick up your favorite FM radio station? In these situations, you need an antenna you can rely on—like our mobile TV antennas for RVs, campers and boats; or an indoor or outdoor antenna optimized for FM reception. See pages 155 and 157 for these affordable special-purpose antennas.



... and more!

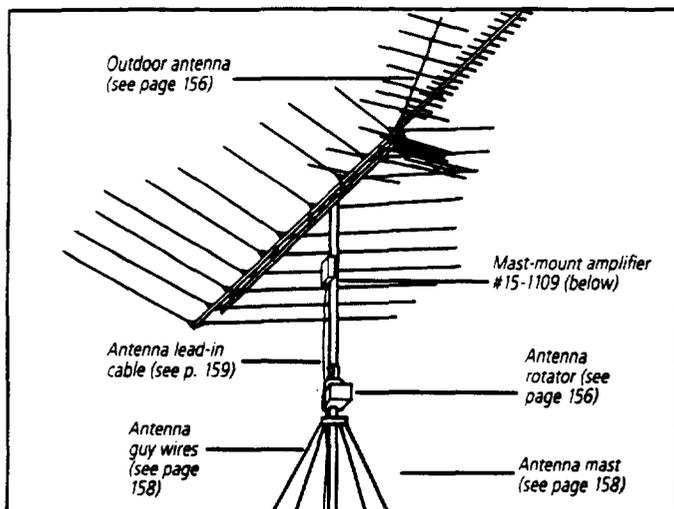
RadioShack has a huge selection of cables, adapters, splitters, amplifiers and more—virtually every part and accessory available for antennas.

Our GOLD-SERIES adapters, cables and splitters feature genuine 24-karat gold plating to prevent corrosion and substantially reduce signal loss. Why settle for less? For only pennies more than traditional hookups, you get all the performance your antenna, TV, VCR and home theater components can deliver. Go for the gold!

For all those little extras you need but can't find, come in and look through our in-store **RadioShack Unlimited catalog**. Besides hard-to-find antenna and satellite-TV products, RadioShack Unlimited now carries a full-size "C" band satellite system receiver and accessories. These and thousands of other unique and useful items are all available for fast shipment direct to your home, office, school or shop. Shipping extra.

*The Telecommunications Act of 1996.





Clearer Picture & Sound

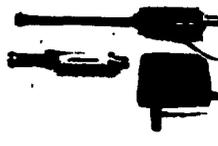
A properly installed outdoor antenna provides the best TV and FM reception. If an outdoor antenna is impractical, an indoor or attic-mounted antenna is acceptable, although not as effective (pages 154-156). If you own an outdoor antenna, check its condition—if it is damaged, corroded or more than 10 years old, you should replace it (pages 156-157). **In weak-signal areas, antenna height is important.** In general, the higher the antenna is mounted, the better it performs (see our masts on page 158). Also, if the stations are in different directions, an antenna rotator will let you aim your antenna for best reception (page 156). If you live in a "fringe" area far from the stations, a good outdoor antenna plus an **antenna-mounted amplifier** are the keys to better reception. In areas where TV and FM signals are so weak that even a large antenna, rotator and high-gain amplifier will not be effective, a satellite-TV system is a great alternative (pages 136-139). For more information, ask the experts at your nearby RadioShack store.



High-gain antenna-mounted signal amplifier boosts VHF-TV (channels 2-13), UHF-TV (channels 14-69) and FM up to 30dB. Adjustable gain. Mounts on antenna mast with included hardware. Switchable FM trap cuts FM interference. 15-1109 **59.99**



Antenna-mounted inline UHF signal amplifier is the one to use if UHF-TV channels are weak and VHF-TV channels are satisfactory. Boosts UHF 20dB. VHF-TV/FM pass through unaffected. 15-1115 **29.99**



Antenna-mounted "bullet" inline signal amplifier boosts VHF-TV, UHF-TV and FM signals up to 10dB. Helps overcome signal loss caused by splitters and long cable runs. 15-1117 **17.99**



Antenna-mounted signal amplifier delivers typical gain of 25dB on VHF-TV, 20dB on UHF. Gain adjusts within a 10dB range to prevent overloading. Has switchable FM trap to cut interference on TV from strong FM stations and automatic short-circuit protection. 15-1108 **39.99**

When to use an antenna-mounted TV/FM amplifier

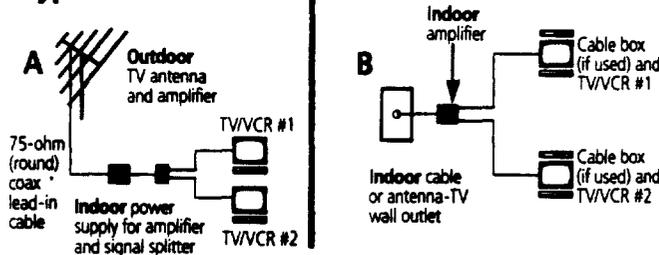
Antenna-mounted amplifiers are intended primarily for weak-signal "fringe" areas far from TV/FM stations. They're useful in moderate signal areas, too—if there is a long run (over 100 feet) of cable between the antenna and TV, or if you are using splitters to divide signals to drive several sets. See diagram A, right.

When to use an indoor TV/FM or cable amplifier

Indoor amplifiers (on facing page) compensate for long runs of coax cable indoors and can distribute signals to several TVs. Three of our indoor amplifiers, (#15-1167, 1168, 1113) boost all VHF/UHF-TV channels 2-69 and FM. Other indoor amplifiers (#15-1960, 1119, 1118, 1116, 1112) are intended primarily to boost cable-TV or other VHF signals and distribute them to other rooms. See diagram B, right.

All amplifiers require 75-ohm (round) coax cable and connections.

Typical installations:



| Amplifier Cat. No. | Installs | VHF-TV/FM (Ch. 2-13) | UHF-TV (Ch. 14-69) | Cable TV | Gain in dB | Number of Outputs | Price |
|--------------------|------------|----------------------|--------------------|----------|------------|-------------------|--------------|
| 15-1117 | At antenna | ✓ | ✓ | | 10 | 1 | 17.99 |
| 15-1115 | At antenna | (Pass-Thru) | ✓ | | 20 (UHF) | 1 | 29.99 |
| 15-1108 | At antenna | ✓ | ✓ | | 10-25 | 1 | 39.99 |
| 15-1109 | At antenna | ✓ | ✓ | | 20-30 | 1 | 59.99 |
| 15-1118 | Indoors | ✓ | | ✓ | 10 | 1 | 12.99 |
| 15-1116 | Indoors | ✓ | | ✓ | 10 | 2 | 13.99 |
| 15-1119 | Indoors | ✓ | | ✓ | 10 | 4 | 15.99 |
| 15-1113 | Indoors | ✓ | ✓ | | 20 | 1 | 24.99 |
| 15-1112 | Indoors | ✓ | | ✓ | 10-20 | 1 | 27.99 |
| 15-1960 | Indoors | ✓ | | ✓ | 10-20 | 2 | 29.99 |
| 15-1168 | Indoors | ✓ | ✓ | | 24 | 4 | 34.99 |
| 15-1167 | Indoors | ✓ | ✓ | | 24 | 4 | 44.99 |

We have what you need to do the job right!

Moisture in connections and coax cable flapping in the wind can seriously degrade your antenna's and/or amplifier's performance in a very short period of time. See items below and others on pages 159-161, 163 and 170.



Indoor/outdoor silicon wrapping tape. Self-fusing. 1" x 3-ft. roll. 64-2336 ... **2.69**



Silicon sealer. An excellent weather-proofer. 3-oz. tube. 64-2314 ... **2.99**



Nail-in coaxial cable clips. For RG6. Ends cable flapping in wind. 278-1661, **6/99¢**



Super-strength electrical tape. 7-mil thickness. Big 3/4" x 66-ft. roll. 64-2352 ... **2.99**

AMPLIFIER ACCESSORIES

See Index for these listings:

Wire and cable, coax • Antennas • Antenna accessories

When to use an indoor TV/FM or cable amplifier

Indoor amplifiers are best used to compensate for long runs of coax cable indoors and to distribute signals to several TVs. Three of our indoor amplifiers, #15-1167, #15-1168 and #15-1113 are designed to boost all VHF and UHF-TV channels 2-69 and FM. Although an antenna-mounted amplifier is best, these indoor amps can be used indoors to boost signals from an outdoor or attic-mounted antenna—if the run of cable from the antenna to amplifier is short (less than 100 ft.) and if signals are relatively strong. The other indoor amplifiers—#15-1960, #15-1119, #15-1118, #15-1116 and #15-1112—are intended primarily to boost cable-TV or other VHF signals and distribute them to other rooms. See diagram B on the facing page. All amplifiers (except #15-1104, below) require 75-ohm (round) coax cable and connections. The amount of amplification provided by an amplifier is stated in decibels (dB). The higher the number, the greater the amount of amplification. For more information on amplifiers and antennas and how to connect them, ask the experts at your nearby RadioShack store.



70-channel 2-way distribution amplifier boosts cable-TV or other VHF signals for distribution to 2 cable boxes, TVs, VCRs or FM receivers. Does not amplify UHF-TV (channels 14-69). Compensates for long cable runs. Gain: 10-20dB. 50-500MHz. UL listed AC. 15-1960... 29.99
As above but with single output. 15-1112... 27.99



4-way distribution amplifier boosts cable-TV or other VHF signals 10dB for distribution to up to four cable boxes, TVs, VCRs or FM receivers. Does not amplify UHF-TV. Compensates for long cable runs. 50-400MHz. UL listed AC. 15-1119, 15.99
Above with 2 outputs. 15-1116... 13.99
Above with 1 output. 15-1118... 12.99

Cords, adapters, splitters, A/B switches and more



IMPORTANT: For best performance, unused outputs on all signal or distribution amplifiers should be properly terminated. See Terminating Resistors, #15-1144, page 161

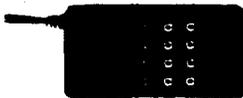
4-way distribution amplifier with remote power supply. Boosts VHF/UHF-TV (channels 2-69) and FM from an outdoor antenna or cable TV. Distributes signals to up to 4 TVs/VCRs. 24dB gain. This amplifier can be located in a central location such as an attic. The UL-listed power supply plugs into an AC outlet near TV/VCR. 15-1167... 44.99

As above but not remote powered. 15-1168... 34.99

VHF/UHF/FM amplifier with single output. Adjustable gain, up to 20dB gain. 15-1113... 24.99



Add-on amplifier for indoor antenna. Converts indoor antenna into an amplified antenna. Provides 10dB boost on VHF/UHF-TV/FM. 300-ohm screw-terminal connections. Includes UL listed AC adapter. 15-1104... 19.99

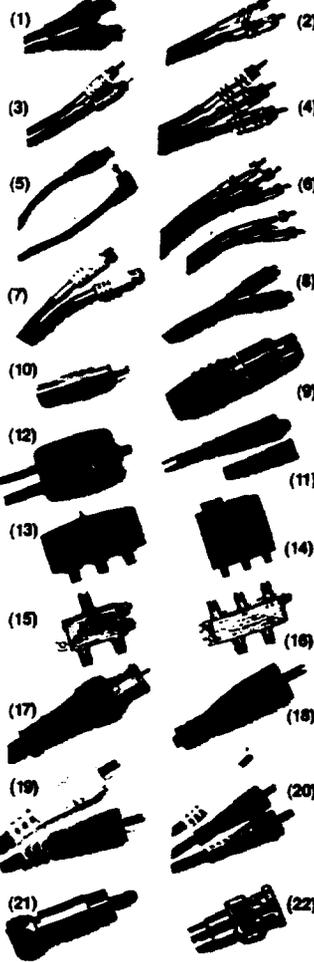


Audio/video distribution amplifier lets you feed the video and audio signals (stereo or mono) from a VCR or other source to as many as three other VCRs or TV monitors. Great for multi-VCR or camcorder-to-VCR dubbing setups. UL listed AC. 15-1103... 29.99



Versatile audio/video dubbing kit includes everything you need to connect most camcorders to a VCR, or connect one VCR to another. Two 6-ft. cables with a phono plug at each end plus two F to phono jack and two 1/4"-plug to phono jack adapters. 15-1525... 6.99

"Gold" TV/phone wall plate. Great for satellite TV—provides the jack needed to connect satellite receiver to phone line. The F connector and modular phone jack are gold-plated to assure long-term reliability. 15-2034... 6.99



Go with the best! Figs. 1-16 have 24K GOLD-PLATED connectors for maximum signal transfer & reliability

| Fig. | Length | Connector Type | Cat. No. | Each |
|------|--|---|----------|-------|
| 1 | 3 feet | RF cable with a push-type F connector at each end | 15-1515 | 3.99 |
| | 6 feet | | 15-1516 | 4.49 |
| | 12 feet | | 15-1517 | 4.99 |
| 2 | 3 feet | Single cable with one RCA phono plug at each end | 15-1518 | 4.99 |
| | 6 feet | | 15-1519 | 5.99 |
| | 12 feet | | 15-1520 | 7.99 |
| 3 | 3 feet | Audio/video cables with two RCA phono plugs at each end | 15-1504 | 8.99 |
| | 6 feet | | 15-1505 | 10.99 |
| | 12 feet | | 15-1506 | 13.99 |
| 4 | 3 feet | Stereo audio/video cables with three RCA phono plugs at each end | 15-1507 | 10.99 |
| | 6 feet | | 15-1508 | 12.99 |
| | 12 feet | | 15-1509 | 16.99 |
| 5 | 3 feet | RF cable. Right-angle push-type F connector at one end, straight push-type F at the other | 15-1513 | 3.99 |
| | 6 feet | | 15-1514 | 4.49 |
| 6 | 6 feet | VCR dubbing set—stereo to mono. Three RCA plugs at one end, two at the other | 15-1521 | 9.99 |
| 7 | 3 feet | RG6 coax cable with screw-on F connector at each end | 15-1541 | 6.99 |
| | 6 feet | | 15-1542 | 7.99 |
| | 12 feet | | 15-1543 | 9.99 |
| 8 | 6 feet | S-video cable. S-video plug at each end | 15-1510 | 13.99 |
| | 12 feet | | 15-1503 | 17.99 |
| 9 | NEW! S-video plug (shown). | | 278-451 | 4.99 |
| | NEW! S-video coupler. Joins two S-video plugs | | 278-455 | 4.99 |
| | NEW! S-video cable. 6.5mm diameter. 30-ft. spool | | 278-470 | 19.99 |
| 10 | Gold-plated plug adapter. Fem. F conn. to phono plug | | 278-290 | 2.49 |
| | Non-gold-plated version of 278-290 (not shown) | | 278-252 | 1.99 |
| 11 | Indoor/outdoor 75 to 300-ohm matching transformer | | 15-1230 | 3.99 |
| 12 | Splitter. 75-ohm (coax cable) input, one 75-ohm and two 300-ohm (screw-terminal) outputs | | 15-1231 | 6.99 |
| 13 | High-isolation mini A/B slide switch | | 15-1232 | 6.99 |
| 14 | High-isolation standard-size pushbutton A/B switch | | 15-1233 | 7.99 |
| 15 | 2-way hybrid splitter. 75-ohm input, two 75-ohm outputs | | 15-1234 | 4.99 |
| 16 | 4-way hybrid splitter. 75-ohm input, four 75-ohm outputs | | 15-1235 | 7.99 |

Standard cables and handy plug adapters

| Fig. | Description | Cat. No. | Price |
|------|---|----------|-------|
| 17 | 2-foot coax cable with push-on F at each end | 15-1533 | 2.69 |
| 18 | 2-foot cable with one phono plug at each end | 15-1538 | 2.99 |
| | | 15-1535 | 3.99 |
| 19 | 6-foot cable with one phono plug at each end | 15-1539 | 4.99 |
| | | 15-1540 | 8.99 |
| 20 | 24-foot A/V cable. Two phono plugs at each end | 15-1537 | 6.99 |
| | | 15-1512 | 8.99 |
| 21 | 6-foot stereo A/V cable. 3 phono plugs at each end | 278-253 | 1.99 |
| 22 | 12-foot stereo A/V cable. 3 phono plugs at each end | 278-255 | 1.99 |
| | | 278-303 | 3.99 |

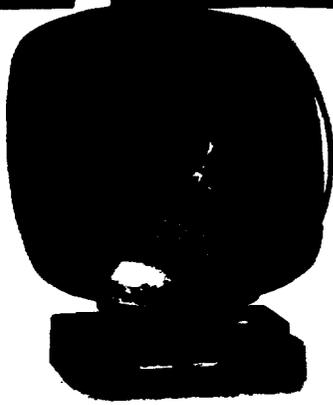


New! 6-ft. mini coax. Thin, easy to route. Gold-plated "F" plug at each end. 15-1560... 9.99
12-ft. coax. 15-1561... 12.99



New! 16" flat coax. Why drill? Run this handy cable under a closed window or door. Gold-plated "F" jack at each end. 15-1565... 14.99

| | | | | |
|---|------|------|------|------|
| (23) | (24) | (25) | (26) | (27) |
| <p>(23) Cable clips. Adhesive back. 278-1639... Pkg. of 10/2.79 (24) Double-side foam tape. Use to mount amplifier. 64-2361... 1.99 (25) Split tubing. Split along one side—makes it easy to gather wires for a neat installation. 5 ft. long. (See description on p. 163.) 278-1654... 4.99 (26) New! 6" colored wire ties. For neat wiring. 278-1720... Set of 20/1.49 (27) Silicone rubber sealant. Tough, flexible. 3-oz. tube. 64-2314... 2.99</p> | | | | |



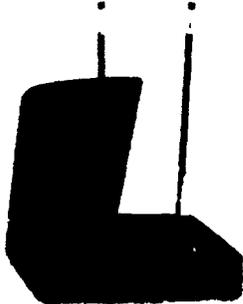
New High-powered amplified TV antenna with A/B switch

Up to 36dB gain—boosts UHF and VHF signals up to 3000 times. Ideal for use with direct-to-home satellite systems to receive local broadcasts. Dramatically improves reception, even from weak or fringe-area TV signals. A/B switch allows pass-through of satellite, cable or video game signal. 12VDC jack for use with an RV power supply. Includes 75-ohm coax cable. UL listed AC adapter. 15-1841 69.99



New Amplified UHF/VHF/FM omnidirectional antenna

Attractive, compact design! Boosts UHF and FM signals up to 30dB to help you get the best picture possible. Omnidirectional reception lets you set it on your TV without having to make other adjustments. Slide switch varies gain by up to 12dB. Includes 75-ohm coax cable and UL listed AC adapter. 15-1844 59.99



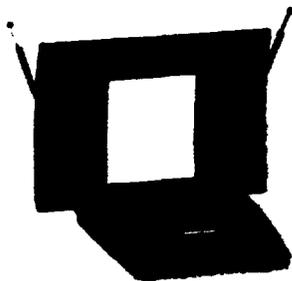
New Amplified mountable TV/FM antenna

Boosts UHF/VHF and FM signals up to 30dB. Small, compact unit can sit on top of TV or mount on wall with provided screws. Dual rod elements swivel 360° to improve reception. Flip-up UHF loop antenna. Includes 75-ohm coax cable and UL listed AC adapter. 15-1840 39.99



Wall-mount amplified TV antenna—boosts up to 42dB

Easy-to-install vertical wall mount amplified antenna. Discreet—mount it behind curtains, paint it, even wallpaper over it! Super high gain—42dB boost. Omnidirectional means no adjustments when mounted properly. Estimated range is 5-25 miles. Some assembly required. Extends to 57 1/4" after assembly. Includes ultra-thin 75-ohm coax cable and 2 AC adapter-mounted F connectors. 57 1/4" x 3 x 1/4". Was \$99.99 in '98 cat. 15-1845 **New Low Price! 79.99**



Amplified TV/FM for wall or set-top

Color Supreme 170. Boosts your signal by up to 10dB. Mounts on wall with included hardware. Normal/boost switch prevents signal overload. 12-position fine-tuning control. Includes 75-ohm cable and UL listed AC adapter. 15-1828 39.99



Amplified with high/low gain

ATV-1000. Boosts signal by up to 15dB for better TV and FM reception. High/low gain switch prevents overloading. 12-position fine-tuning control. 75-ohm cable. Includes UL listed AC adapter. 15-1838 29.99

Improve Your Reception

We have a big selection of indoor antennas to help you enjoy better TV and FM reception anywhere an outdoor antenna is impractical or unnecessary.

QUESTION:

What should I consider when selecting an indoor antenna?

Q&A

ANSWER:

There are several considerations in choosing an indoor antenna—some of which may be more important to you than others.

One is your location. Consider an amplified antenna to improve reception in "fringe" areas or crowded urban areas where signals can reflect off surrounding buildings. We have amplified antennas for both set-top and wall-mounting.

Also consider the type of hookup you need. Some of our indoor antennas feature 75-ohm (round coaxial) cable for connection to cable-ready TVs and VCRs. Others have 300-ohm (flat-wire) leads for hookup to VHF and UHF antenna screw terminals. Many also feature both types of connectors. (See chart on next page.)

Any questions? Stop by your local RadioShack and check out our easy-to-understand book on antennas: **Selecting and Installing Antennas** (see below).

Special reception or distribution needs? **RadioShack Unlimited™** can help.

You'll find a big selection of signal amplifiers and splitters in our RadioShack Unlimited catalog. Plus systems that can distribute a single DSS or VCR signal to every TV in your home. And it's all available for fast shipment to your door. Shipping extra.

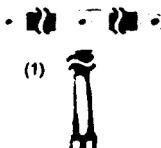


Easy-to-use guide answers all of your antenna questions

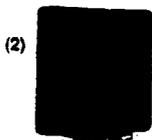
Antennas—Selection and Installation. Here's everything you need to know in order to choose and install the best possible antenna system. 112 pages. 62-1083 6.99

Wall-mount amplified AM/FM antenna

Our best indoor AM/FM antenna with up to 42dB gain and a 10-25 mile range. Omnidirectional—no adjustments needed. Paint, hide behind drapes or wallpaper. 75-ohm cable. 2 female connectors. Was \$79.99 in '98 catalog. 15-1846 New Low Price! 59.99



(1) **Dipole FM antenna.** Connects to any FM receiver that has screw terminals for antenna. 58" element. 42-2385, 2.99

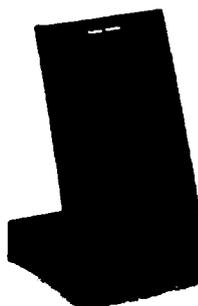


(2) **New Indoor FM antenna.** Pick up more FM stations. Improve stereo quality. 15-1843, 12.99



Amplified FM with AM

Compact and effective. Low-noise FM amplifier has gain control for best reception. Easily positioned for best AM. Includes UL listed AC adapter and matching transformer. 15-1832 39.99



FM amplified antenna

Low-noise, high-gain FM amplifier boosts FM signals. Fine-tuning control. High/low gain switch prevents overloading on strong signals. 75-ohm output. UL listed AC adapter. 15-1833 29.99



Portable TV/FM amplified

Boost/normal switch helps prevent signal overloading. Built-in amp boosts TV and FM signals. With UL listed AC adapter. Amplifier requires 2 "AA" batteries for portable use. 15-1607 24.99

TV reception problem solvers!



With UHF reflector

TV-510. TV/FM with 12-position fine-tuning. UHF reflector tilts & swivels for best picture. Has both 75-ohm coax and 300-ohm flat-wire terminals. 15-1837, 24.99



Rotatable TV/FM

Color Supreme 100. Rotary control positions VHF and UHF elements. 12-position fine-tuner. 75-ohm coax, 300-ohm flat-wire terminals. 15-1825, 24.99



Compact TV/FM

Color Eagle 210. 12-position fine-tuning control helps cut "ghosts". 75-ohm coax output and 300-ohm flat-wire leads. 15-1836 19.99



TV/FM with fine-tuning

Color Eagle 100. Adjustable UHF elements. 12-position fine-tuner. Mountable on wall. 300-ohm leads. 15-1808 19.99



UHF double-bow antenna

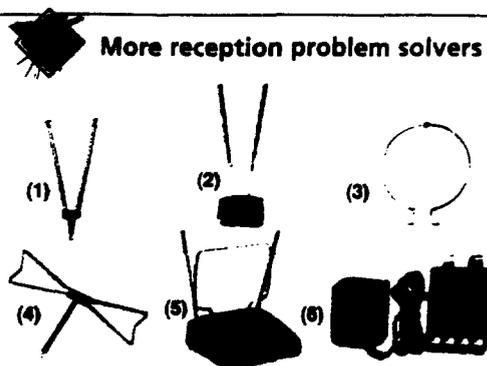
Outperforms built-in UHF antennas. 300-ohm hookup. 15-623 15.99



New Compact TV/FM antenna

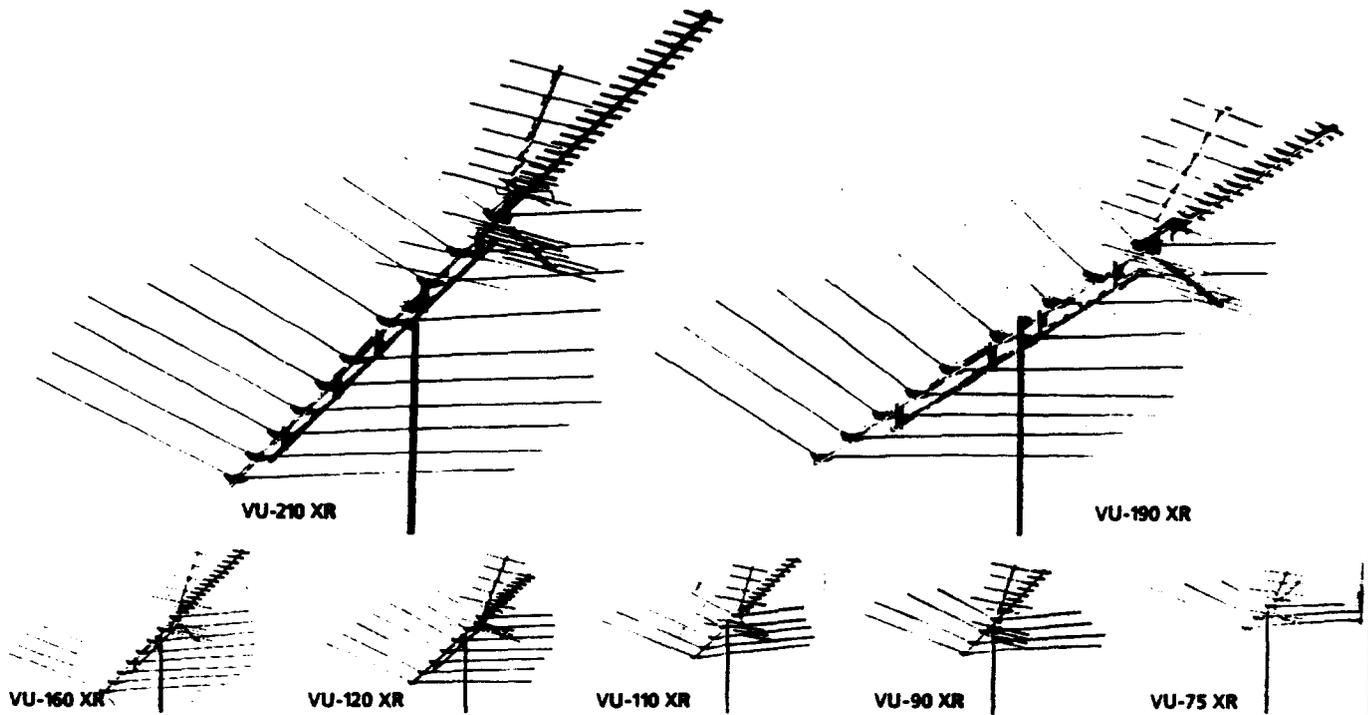
12-position fine tuning. UHF reflector dish. 39" telescoping VHF rods. Coax cable for 75-ohm hookup. 15-1813 . . 17.99

More reception problem solvers

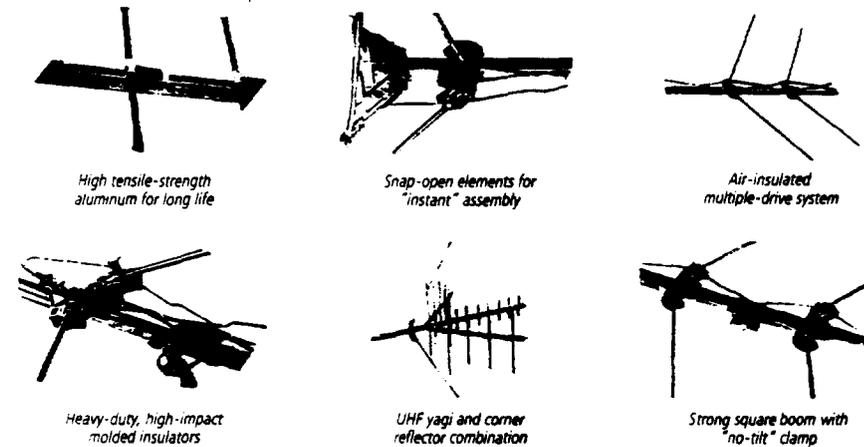


- (1) **VHF dipole.** Back-of-set snap-in VHF-TV antenna. 300-ohm hookup. 15-235 4.99
- New** As above, with 75-ohm transformer. 15-236 5.99
- (2) **Classic VHF-TV/FM top-of-set antenna.** Adjustable telescoping rods. Non-skid base. 15-1827 6.99
- (3) **UHF loop.** Replacement for missing back-of-set UHF loop antenna. 15-233 1.99
- (4) **UHF outline bow-tie.** Super-easy to install—snaps on VHF antenna rod. 15-234 2.99
- (5) **Budget TV antenna.** Telescoping VHF rods. Loop UHF. 12-position fine tuner. 300-ohm flat-wire leads. 15-1806, . . 9.99
- (6) **"Booster" for indoor TV/FM antenna.** Pull in distant channels. 10dB boost. 300-ohm input. 15-1104 19.99

| Cat. No. | Page | Usage | | | Rotary Control | Hookup | | Signal Boost | Price |
|----------|------|-------|-----|----|-----------------------|-----------|---------|--------------|-------|
| | | UHF | VHF | FM | | 75-ohm | 300-ohm | | |
| 15-1827 | 155 | | ✓ | ✓ | | | | 8.99 | |
| 15-1806 | 155 | ✓ | ✓ | ✓ | ✓ | | | 9.99 | |
| 15-1843 | 155 | | ✓ | ✓ | | | | 12.99 | |
| 15-1813 | 155 | ✓ | ✓ | ✓ | ✓ | | | 17.99 | |
| 15-1808 | 155 | ✓ | ✓ | ✓ | ✓ | | | 19.99 | |
| 15-1836 | 155 | ✓ | ✓ | ✓ | ✓ | | | 19.99 | |
| 15-1607 | 155 | ✓ | ✓ | ✓ | | | 15dB | 24.99 | |
| 15-1825 | 155 | ✓ | ✓ | ✓ | ✓ | mini plug | | 24.99 | |
| 15-1837 | 155 | ✓ | ✓ | ✓ | ✓ | | | 24.99 | |
| 15-1833 | 155 | ✓ | ✓ | ✓ | ✓ | | | 29.99 | |
| 15-1838 | 154 | ✓ | ✓ | ✓ | ✓ | | 8dB | 29.99 | |
| 15-1832 | 155 | ✓ | ✓ | ✓ | ✓ | | 15dB | 29.99 | |
| 15-1828 | 154 | ✓ | ✓ | ✓ | ✓ | | 30dB | 39.99 | |
| 15-1840 | 154 | ✓ | ✓ | ✓ | ✓ | | 10dB | 39.99 | |
| 15-1842 | 154 | ✓ | ✓ | ✓ | slide with A/B switch | | 30dB | 39.99 | |
| 15-1844 | 154 | ✓ | ✓ | ✓ | slide | | 30dB | 59.99 | |
| 15-1846 | 155 | ✓ | ✓ | ✓ | slide with A/B switch | | 42dB | 59.99 | |
| 15-1841 | 154 | ✓ | ✓ | ✓ | ✓ | | 36dB | 69.99 | |
| 15-1845 | 154 | ✓ | ✓ | ✓ | ✓ | | 42dB | 79.99 | |



Our antennas are built better to last longer



The best parts, the best selection.
At RadioShack, we carry a wide selection of high-quality mast and mounting hardware to meet your long-lasting installation needs (see page 158). Plus, many more antennas and hardware are available through RadioShack Unlimited.

Selecting and Installing Antennas. Learn how antennas work and how to select and install the antenna that's right for your needs. Covers TV, FM, CB, cellular, satellite and short-wave antennas. 62-1083. 6.99



Aim your antenna to get the best TV picture & FM reception

Archerator® aims your antenna for the clearest signal from every station in range. An indicator on the remote displays antenna direction. Audiophiles: Helps cut FM "multipath" signals for improved stereo in problem areas. Fits 1/4" to 1 1/4" masts. UL listed AC. Requires 3-conductor cable below. RS 15-1225. 64.99

New Remote-control antenna rotator. (Not shown.) Use the remote to aim antenna in up to 69 positions for best reception. Heavy-duty mast rotator, control box & handheld remote. RSU 12041026 . . . 99.99

We have the rotator cable you need

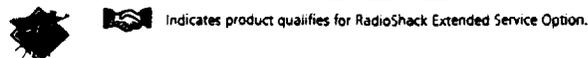
| No. Cond. | Feet | Cat. No. | Per Roll |
|-----------|------|----------|----------|
| 3 | 50 | 15-1149 | 5.99 |
| 3 | 100 | 15-1150 | 8.99 |
| 5 | 100 | 15-1201 | 13.99 |

Select the model that's right for your neighborhood

| Model No. | Range in Miles* | | | Suggested Use | | | Mount Type | | Boom Length | No. of Elements | Catalog No. | Price |
|-----------|-----------------|-----|-----|---------------|--------|-------|------------|-------|-------------|-----------------|-------------|--------|
| | VHF | UHF | FM | City | Suburb | Rural | Roof | Attic | | | | |
| VU-75 XR | 75 | 50 | 50 | ✓ | ✓ | | ✓ | ✓ | 50" | 18 | 15-2151 | 29.99 |
| VU-90 XR | 90 | 70 | 70 | ✓ | ✓ | | ✓ | ✓ | 80" | 32 | 15-2152 | 39.99 |
| VU-110 XR | 110 | 90 | 90 | ✓ | ✓ | | ✓ | ✓ | 100" | 32 | 15-2153 | 49.99 |
| VU-120 XR | 120 | 90 | 90 | ✓ | ✓ | | ✓ | ✓ | 120" | 37 | 15-2154 | 59.99 |
| VU-160 XR | 160 | 100 | 100 | | ✓ | ✓ | ✓ | ✓ | 140" | 42 | 15-2155 | 79.99 |
| VU-190 XR | 190 | 100 | 100 | | ✓ | ✓ | ✓ | ✓ | 160" | 57 | 15-2156 | 99.99 |
| VU-210 XR | 210 | 135 | 135 | | ✓ | ✓ | ✓ | ✓ | 190" | 58 | 15-2157 | 129.99 |

*Estimated range, based on outdoor reception over flat and open terrain. Masts not included.

Note: 5-conductor cable is for older, discontinued models.



Items with an RSU number are available for fast shipment direct to your door from Radio Shack Unlimited™. Shipping and pricing information on page 4.

Antennas for Special Reception Needs

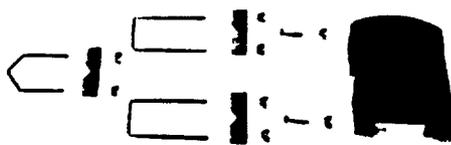
We'll help you choose the proper antenna for your needs, and give you the information and accessories you need for a professional installation.



Discreet amplified antenna mounts indoors or outside— PLUS, it's easy to use with mini satellite to pull in local broadcasts

This advanced "low-profile" antenna is a great choice for locations between 10 and 55 miles from TV stations—like in many suburban areas. Combines great reception with installation ease. Simply attach antenna to an exterior wall in your home, garage or attic, connect and run additional RG-6 coax cable (see page 159) to TV set and enjoy. Operates on an inside switchable amp—switch it on for better reception at the outskirts of a city. Great for satellite systems—add the supplied diplexers/splitters to combine VHF/UHF and satellite signals into one single cable leading into the house. More attractive and inconspicuous than roof-top antennas. Paintable with sleek, weatherproof housing. It's designed for horizontal placement, as high as possible, and it's directional to boost reception in front and to the back of its mounted location. 76" long. **15-1847** **99.99**

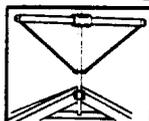
Note: If you live in a house, apartment, or condominium with aluminum siding, plaster walls or metal framing, the antenna must be installed outdoors. For attic mounts, the attic must not have metal foil wrapped insulation.



- Installs easily in attic, garage, on an inside or outside wall—needs only 2 mounting holes
- Paintable to blend in with the interior or exterior finish of your home
- Ideal for use alone or with satellite TV—includes diplexers so only one lead-in cable is required for this local antenna and your dish

New Easily mount the amplified antenna on a standard mast

Mounting kit lets you secure the #15-1847 antenna, above, to any standard 1/4" mast. **15-1848** **19.99**



(1)



(2)

Mobile TV antennas

(1) Magnetic-mount mobile TV antenna. VHF/UHF-TV antenna ideal for car, truck or van. It's sleek and aerodynamic, and can be mounted magnetically on the roof or rear deck of your vehicle, or permanently with the included hardware. It's safe for automatic car washes and can be painted to match vehicle. Comes with 14-foot coax cable and 300-ohm matching transformer. **15-1614** **49.99**

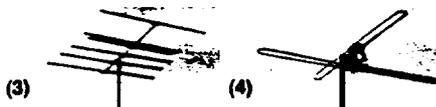
(2) Mobile VHF/UHF dipole antenna. Let your passengers enjoy broadcast television programs while traveling. It quickly installs on rain gutter or window and removes in seconds. Loaded fiber glass dipole elements. Includes coax lead-in cable. **15-1609** **29.99**

Amplified omnidirectional antenna

Top choice for suburban or urban areas, RVs, trailers and boats, too. Receives VHF/UHF signals from all directions without a rotator. Amplifier boosts signals 20dB. Includes mounting hardware. DC adapter jack. UL listed AC adapter. **15-1624** .. **99.99**

Remote-control directional antenna

(Not shown) TV antenna system designed for city and suburban areas. Includes unidirectional antenna, solid state amp, electric rotating servo, remote control, mounting hardware, and 60-foot of coax cable. **RSU 12041596** **199.99**



(3)

(4)

FM-stereo antennas—pick up more FM stations

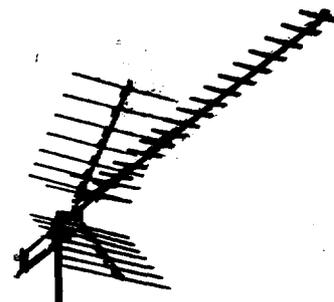
(3) High-gain FM-stereo antenna. Increase your FM receiver's reception range. Triple-drive directional antenna picks up signals from as far as 110 miles away*. Can be attic mounted without signal loss. Preassembled for easy installation. **15-2163** **19.99**

(4) FM and FM-stereo antenna. Improved FM stereo reception at an affordable price. Works great in city and suburban areas. Improves signal-to-noise ratio. Pulls in signals from up to 50 miles away.* 360° pickup pattern. Compact size makes it ideal for attic or rooftop mounting. Comes factory preassembled for easy installation. **15-2164** **14.99**

We'll help you get the best reception possible!

Why does RadioShack sell more antennas than anyone else? We're the store that has everything you need to improve your viewing and listening—antennas of every description, hardware for every type of installation, and answers to reception questions. We'll help you select the right antenna and suggest where you can place it to get the best results.

At RadioShack, you'll find a wide selection of mast and mounting hardware to meet your needs, whether you're mounting your antenna on a roof, attaching it to a chimney, or placing it in your attic (see page 158).



Outdoor antennas for UHF-only (channels 14-69)

Add to your existing VHF antenna to boost UHF reception. Ideal for use when UHF and VHF stations are in different directions and for custom fringe-area installations. Tuned for precise band coverage. Comes preassembled with snap-in-position elements for easy do-it-yourself setup and installation. (#15-2162 UHF shown.)

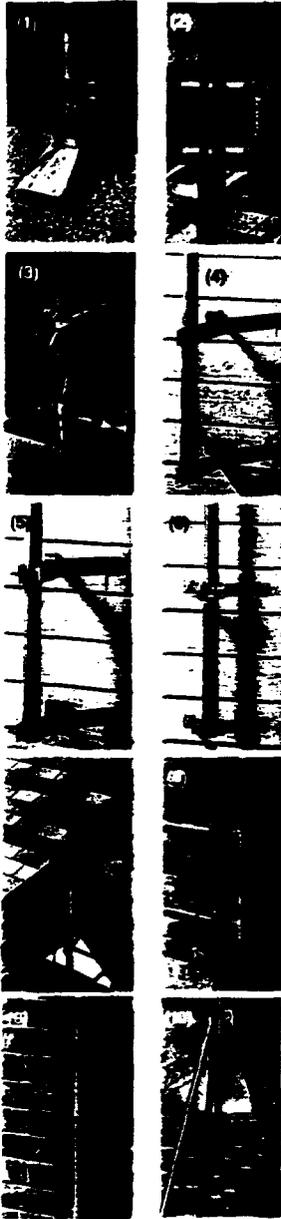
| Cat. No. | Type | Range in Miles | Mount Type | | Boom Length | No. of Elements | Price |
|----------|------|----------------|------------|-------|-------------|-----------------|--------------|
| | | | Roof | Attic | | | |
| 15-2160 | UHF | 75 | ✓ | ✓ | 60" | 17 | 19.99 |
| 15-2162 | UHF | 120 | ✓ | ✓ | 100" | 34 | 39.99 |

Doing it yourself? Play it safe!

While RadioShack recommends and can arrange professional installation of outdoor antennas, many of our customers choose to do the work themselves. Be sure to follow the safety instructions included with outdoor antennas. **Never** install an antenna where it could come in contact with power lines.

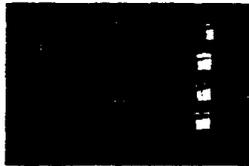
You'll find more antenna and satellite products available through RadioShack Unlimited™, our large in-store catalog. *Estimated range, based on reception over flat and open terrain.



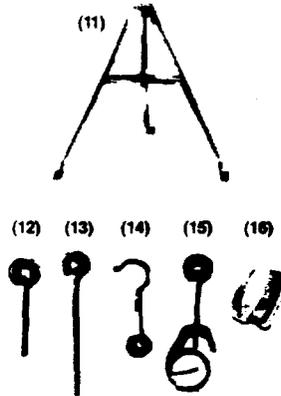


Mast mounts for roof, vent pipe, chimney, eaves and walls

- (1) **Base and roof mount.** Mast locks into exclusive-design U-bolt. The swivel base fits the slope of virtually any roof. Made of heavy gauge steel. 15-889 8.99
- (2) **Vent pipe mount.** An alternative to chimney mounting for small antennas. Attach brackets to vent pipe, then clamp mast into place. For 2" to 5" vents. Heavy-duty steel. 15-893 6.99
- (3) **Universal mast anchor mount.** Heavy-duty U-bolt for easy swivel. For masts up to 1 1/2" in diameter. (Mast must be guyed for roof and window installations.) 15-888 4.99
- (4) **12" wall mounts.** Secures a mast of up to 1 1/4" diameter at 12" from the side of building. Allows mast to clear eaves or other obstruction. Made of galvanized steel. 15-885 Pair 12.99
- (5) **8" wall mounts.** Holds mast of up to 1 1/4" diameter at 8" from side of building. 15-886 Pair 9.99
- (6) **4" wall mounts.** Holds mast of up to 1 1/4" diameter at 4" from side of building. 15-883 Pair 5.99
- (7) **Eaves mount for hanging rafters or trim boards.** An alternative to roof and chimney mounting. Fits most medium-pitch roofs. Accepts mast to 1 1/2" diameter. Includes four lag bolts. 15-891 9.99
- (8) **Chimney ratchet mount.** Provides secure mounting to chimney. Tightens with screwdriver. Includes two stainless steel straps, each 3/4" x 18 feet. Accepts antenna mast 1" to 1 1/4" diameter. 15-839 17.99
- (9) **Corner mounts.** Just the thing for chimney mounting. Two Y-mounts with 3/8" x 10-foot rust-resistant galvanized straps. 15-527 12.99
- (10) **3-foot tripod mount.** Perfect for larger antennas in areas subject to strong winds. Fits slope of most roofs. Accepts antenna mast up to 1 1/4" diameter. Pre-assembled. 15-516 15.99
- (11) **Heavy-duty 3-foot tripod mount.** Hinged design for easier antenna repair or replacement. Heavy-duty straps and wings for better stability. Sturdy "L" bracket supports mast. 15-517 19.99



25-foot strap kit. Two 3/4" x 25-foot stainless steel straps for replacement or add-on. Ideal for large chimneys. Includes four eye bolts and complete mounting hardware. 15-801 12.99

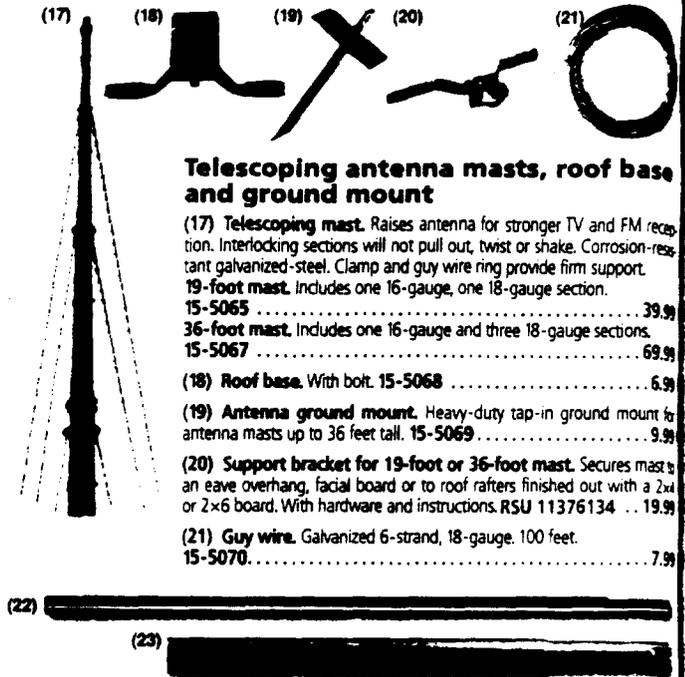


Standoff insulators

| Fig. | Description | Cat. No. | Price |
|------|-----------------------|----------|-------|
| 12 | 4 wood screw, 3 1/2" | 15-853 | 1.48 |
| 13 | 4 wood screw, 5 1/2" | 15-854 | 1.48 |
| 14 | 2 snap-grip type | 15-822 | 1.48 |
| 15 | 2 strap-on type | 15-823 | 1.48 |
| 16 | 2 mini-egg insulators | 278-1335 | 4.78 |

RadioShack... Your Reception Connection

The key to getting good reception from your antenna is proper installation. At RadioShack, we stock the highest-quality masts, mounts and other hardware required for a long-lasting outdoor antenna installation. We make it easy for you to do it yourself. Come in today and we'll help you select what you need to start getting better reception right now.

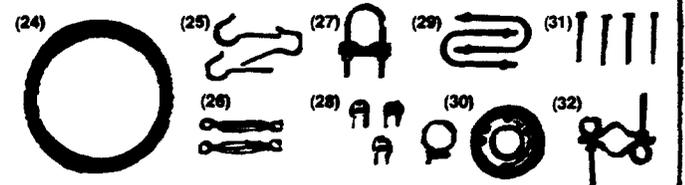


Telescoping antenna masts, roof base and ground mount

- (17) **Telescoping mast.** Raises antenna for stronger TV and FM reception. Interlocking sections will not pull out, twist or shake. Corrosion-resistant galvanized-steel. Clamp and guy wire ring provide firm support. 19-foot mast. Includes one 16-gauge, one 18-gauge section. 15-5065 39.99
- 36-foot mast. Includes one 16-gauge and three 18-gauge sections. 15-5067 69.99
- (18) **Roof base.** With bolt. 15-5068 6.99
- (19) **Antenna ground mount.** Heavy-duty tap-in ground mount for antenna masts up to 36 feet tall. 15-5069 9.99
- (20) **Support bracket for 19-foot or 36-foot mast.** Secures mast to an eave overhang, facial board or to roof rafters finished out with a 2x4 or 2x6 board. With hardware and instructions. RSU 11376134 ... 19.99
- (21) **Guy wire.** Galvanized 6-strand, 18-gauge. 100 feet. 15-5070 7.99

Heavy-duty masts

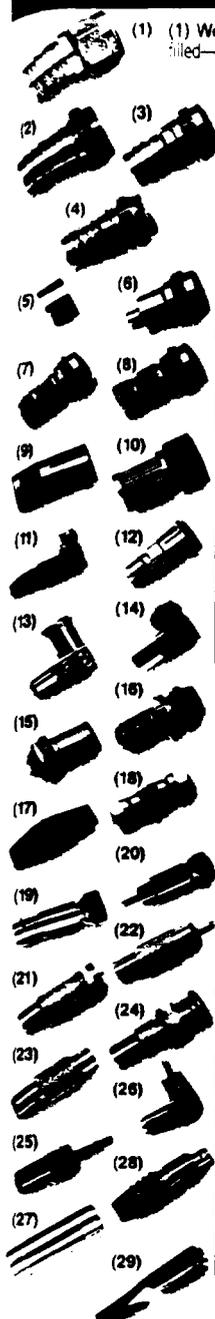
- (22) **5-foot.** 16-gauge, galvanized steel mast for superior rust protection. Silver painted finish. 15-847 8.99
- 10-foot mast. 15-848 14.99
- (23) **5-foot.** 16-gauge steel, tapered end, enamel finish. 1 1/4" diameter. 15-842 7.99
- 10-foot mast. 15-843 14.99



Galvanized guy wire, wire anchors, turnbuckles, U bolts, clamps, guy ring, lag bolts, additional hardware

| Fig. | Description | Cat. No. | Price |
|------|--|----------|-------|
| 24 | 50-ft. galvanized wire | 15-030 | 1.99 |
| 24 | 100-ft. galvanized wire | 15-031 | 2.99 |
| 25 | 3 guy wire anchors | 15-825 | 1.48 |
| 26 | 2 guy wire turnbuckles: 6" open, 4" closed | 15-829 | 1.99 |
| 27 | U bolt and clamp | 15-828 | 1.48 |
| 28 | 3 guy wire clamps | 15-850 | 1.48 |

| Fig. | Description | Cat. No. | Price |
|------|---|----------|-------|
| 29 | 2 U bolts with nuts | 15-830 | 1.48 |
| 30 | 1 1/4" guy ring and collar | 15-835 | 1.99 |
| 31 | Set of 4 hex lag bolts: 1/4" x 1 1/2" for heavy-duty mounting | 15-833 | 1.48 |
| 32 | Guy wire mast clamp with bolts | 15-827 | 1.48 |



(1) (1) Weatherproof F connectors. For RG-6 coaxial cable. Silicone-filled—perfect for outdoor use. 278-236. Pkg. of 2/1.99

75-ohm F connectors for TV, VCR, satellite & cable-TV hookups



| Fig. | Type | For Cable | Plating | Pkg. of | Cat. No. | Price |
|------|-------------------------|-----------|---------|---------|----------|-------|
| 2 | Crimp-on | RG6QS | Gold | 2 | 278-237 | 1.99 |
| | Crimp-on | RG6S | Std. | 2 | 278-232 | .99 |
| 3 | Crimp-on | RG59 | Gold | 2 | 278-224 | 1.99 |
| | Crimp-on | RG6 | Gold | 2 | 278-225 | 1.99 |
| 4 | Crimp-on | RG59 | Std. | 2 | 278-222 | .99 |
| | Crimp-on | RG6 | Std. | 2 | 278-223 | .99 |
| 5 | Crimp-on | RG59 | Std. | 10 | 278-230 | 3.99 |
| | Crimp-on | RG6 | Std. | 10 | 278-231 | 3.99 |
| 6 | Crimp rings | RG59 | Std. | 6 | 278-216 | .89 |
| | Crimp rings | RG6 | Std. | 6 | 278-217 | .89 |
| 7 | Twist-on | RG59 | Gold | 1 | 278-292 | 1.49 |
| | Twist-on | RG6 | Gold | 1 | 278-229 | 1.49 |
| 8 | Twist-on | RG6 | Gold | 10 | 278-286 | 11.99 |
| | Twist-on | RG6 | Std. | 1 | 278-228 | .99 |
| 9 | Twist-on | RG6 | Std. | 10 | 278-285 | 7.99 |
| | Solderless | RG59 | Std. | 1 | 278-215 | 1.29 |
| 10 | Solderless F speed plug | RG59 | Std. | 1 | 278-234 | 1.99 |
| | Solderless right-angle | RG6 | Std. | 1 | 278-280 | 2.49 |

- (12) Gold-plated screw-on to push-on adapter. Converts screw-on male F to push-on type. 278-291. 1.99
- Standard screw-on to push-on adapter. 278-218. 1.49
- (13) Right-angle screw-on to push-on adapter. Ideal for tight places. Helps prevent damage to jack. 278-235. 1.99
- (14) Gold-plated right-angle F adapter. 278-305. 2.49
- Standard right-angle adapter. 278-221. 1.79
- (15) F-61. Panel-mount F jack. 278-212. Pkg. of 2/1.19
- (16) Gold-plated F-81 coupler. 278-304. 1.79
- Std. F-81 coupler. Joins 2 male F connectors. 278-213. 99¢
- (17) Indoor 75-ohm splicers. 278-226. Pkg. of 2/2.99
- (18) **New** Gold-plated F male-to-male adapter. Joins two F females. For inline amp, other hookups. 278-275. 2.49
- Standard F male-to-male. 278-219. 1.49

| Fig. | Accepts | Fits | Plating | Cat. No. | Each |
|------|------------|------------|---------|----------|------|
| 19 | BNC plug | F jack | Std. | 278-256 | 2.99 |
| 20 | Phono jack | F jack | Std. | 278-253 | 1.99 |
| 21 | Phono plug | F jack | Gold | 278-276 | 2.49 |
| | Phono plug | F jack | Std. | 278-255 | 1.99 |
| 22 | F plug | Phono jack | Gold | 278-290 | 2.49 |
| | F plug | Phono jack | Std. | 278-252 | 1.99 |
| 23 | F plug | Phono plug | Std. | 278-263 | 1.99 |
| | F plug | BNC jack | Gold | 278-277 | 3.49 |
| 24 | F plug | BNC jack | Std. | 278-251 | 2.99 |
| | F plug | 1/8" jack | Gold | 278-287 | 2.99 |
| 25 | F plug | 1/8" jack | Std. | 278-257 | 2.19 |
| | F plug | Phono jack | Std. | 278-280 | 2.99 |

- (27) **New** S-video coupler. Joins 2 S plugs. 278-455. 4.99
- (28) **New** S-video plug. For 6.5mm cable. 278-451. 4.99
- (29) **New** S-video cable. 6.5mm dia. 30 ft. 278-470. 19.99

Bulk coax cable for TV, VCR, satellite, CB, Ham & scanner hookups

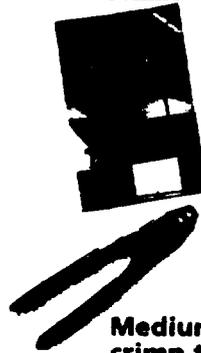
- RG-6.** 75 ohm. For antenna/cable-TV/satellite interior wiring.
- RG-6QS.** 75ohm. (Quad shield). Same uses as RG-6. Four levels of heavy-duty shielding help screen out interference.
- RG-59.** 75 ohm. For outdoor TV antenna wiring. Not recommended for cable-TV use.
- RG-58.** 50 ohm. Popular small-diameter cable for CB, Ham, shortwave and mobile antenna hookups.
- RG-8.** 50 ohm. For CB, Ham and scanner antenna lead-ins. Low-loss. Copper braid 95% shielding.
- RG-8M.** 92% shield. Same use as RG-8 but for shorter runs.

| RG Type | Ohms | OD (in.) | Velocity Factor | Loss in dB Per 100 Feet | | Capacitance Per Foot | Center Conductor | Cat. No. | Per Ft. |
|-----------|------|----------|-----------------|-------------------------|-----------|----------------------|------------------|----------|---------|
| | | | | At 100MHz | At 400MHz | | | | |
| 6 (white) | 75 | .286 | 78% | 2.2 | 4.4 | 17.5pF | 18 gauge solid | 278-1318 | .24 |
| 6 (black) | 75 | .266 | 78% | 2.2 | 4.4 | 17.5pF | 18 gauge solid | 278-1316 | .24 |
| 6QS | 75 | .286 | 78% | 2.1 | 4.4 | 17.3pF | 18 gauge solid | 278-1317 | .32 |
| 59 | 75 | .242 | 78% | 2.9 | 5.9 | 14.8pF | 20 gauge solid | 278-1319 | .23 |
| 58 | 50 | .198 | 66% | 4.5 | 10.0 | 28.5pF | 20 gauge solid | 278-1314 | .23 |
| 8 | 50 | .405 | 66% | 1.9 | 4.1 | 26.4pF | 13 gauge (7x21) | 278-1312 | .70 |
| 8M | 50 | .242 | 78% | 3.7 | 8.0 | 25.2pF | 16 gauge (19x29) | 278-1313 | .32 |

Items with an RSU number are available for fast shipment direct to your door from RadioShack Unlimited. Shipping and pricing information on page 4.

Selecting and installing antennas

Learn how antennas work and learn how to select and install the antenna that's right for your needs. Covers TV, FM, CB, cellular, satellite and shortwave antennas. Clear, meaningful illustrations and easy-to-read text. 62-1083. 6.99



Medium-duty crimp tool

Quality all-steel tool crimps all F-56 and F-59 coax connectors. Cushioned handles. 278-242. 6.99



Economy coax cable crimp tool

Securely installs F connectors on 75-ohm coax cable. Use with our F-56 and F-59 (#278-211 and #278-214) connectors only. All-steel. 278-220. 3.49



"Pro" quality crimp tool

For installing all crimp-on F-56 and F-59 coax connectors. Easy to use, built for years of service. All steel construction, cushioned handles. 278-243. 15.99



Precision coax cable cutter

Special curved blades do not flatten or damage cable while cutting to preserve proper impedance and simplify installation. Blades are held open by a spring. 278-244. 5.99



Economy coax cable stripping tool

For RG-6 and RG-59 cable. Provides clean, accurate nick-free cuts. Long-life cutting blade. 278-247. 6.99



Deluxe coax cable stripper

Cuts and strips insulation from RG-6, RG-58, RG-59, and other coax cables. 278-248. 11.99

Replacement blades for above. RSU 11287067. 2 sets for 1.99

QUESTION:

How do I install an F connector on 75-ohm coax cable?



ANSWER:

1. Strip the cable to expose 1/4" to 3/8" of the outer braid and 1/8" to 1/4" of the center conductor, depending on the type of connector being used. Instructions and diagrams are printed on our connector packages. A stripping tool like the ones shown above makes the job fast and easy.
- Next, fold back the braid over the outer jacket.
- NOTE: On quad-shield (RG6QS) cable, remove the outer braid and outer foil layer, then fold back the inner braid to expose the foil over the white core.



Strip dimensions



Braid folded back

2. Push the F connector over the exposed wire end, rotating the connector to get a secure fit.



crimp

3. To complete the installation, crimp the connector with a crimp tool such as #278-242, above.

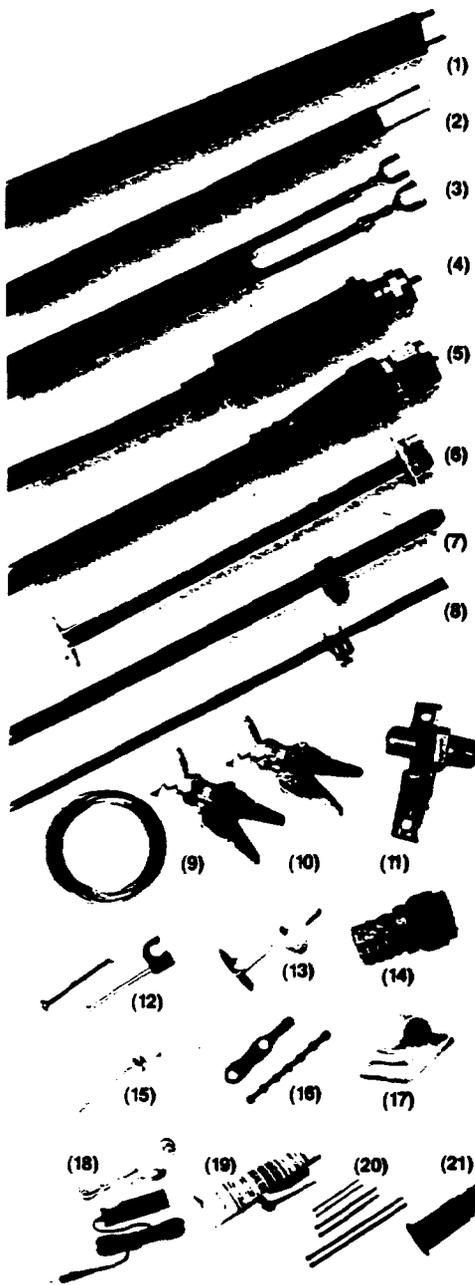
Using twist-on F connectors. Prepare the cable by stripping it as described above. Then, simply twist the connector until its body is firmly in place.



Video RF modulator

Lets you use a TV as a monitor for a video game, camera, video processor and some computers. Converts line-level video to TV channel 3 or 4. 15-1283 ... 29.99

New RF modulator/switch. As above but with automatic switching. Available Dec. 1998. 15-1244 ... 29.99



Video game RF modulators



New For Sony PlayStation. Automatically switches from TV input to video game. 15-1212 ... 24.99

New For Sega Saturn. RSU 11973146 ... 19.99

New For Nintendo 64. 15-1241 ... 24.99

Antenna installation is easy with the right cable & hardware

(1) 300-ohm (flat) twin-lead cable. Two 20-gauge stranded copper conductors enclosed by low-loss foam insulation and heavy-duty polyethylene outer jacket. 50 feet. 15-1174. ... 5.99
100 feet. 15-1175. ... 9.99

(2) Economy 300-ohm (flat) cable. Lighter weight than fig. 1. Indoor use only. 40 feet. Brown. 15-004. ... 2.49
40 feet. Clear. 15-1158. ... 2.49
50 feet standard 300-ohm (flat) cable. For indoor/attic installation. 15-1153 ... 3.59

(3) 8-foot 300-ohm (flat) cable. 15-1532. ... 2.49

(4) Ready-to-use 75-ohm (round) foam coax cable assemblies. F connector installed at each end. 50 ft. 15-1526 ... 9.99 100 ft. 15-1527 ... 15.99

(5) Ready-to-use premium RG-6 75-ohm (round) coax cable assemblies. For indoor/outdoor use and direct burial. Great for mini-dish satellite, outdoor TV antenna or cable-TV hookups. Weatherproof silicon-filled F connector at each end. 50 feet. 15-1548. ... 14.99
100 feet. 15-1549 ... 19.99

(6) "Wall-thru" lead-in tube. Installs in walls up to 13" thick. 15-1200 ... 2.79

(7) UL listed 8-foot ground rod and clamp. Copper plated. 15-529 ... 16.99

(8) Economy 4-ft. ground rod. 15-530 ... 8.99

(9) Aluminum ground wire. 40 feet. 8 gauge. Use with ground rod (fig. 7 or 8). 15-035 ... 3.99

(10) TV/FM antenna clips. Provide instant connection and disconnection of 300-ohm lead-in to screw terminals on TV set or VCR. 15-832 ... Set of 2/1.49

(11) Grounding block. Helps prevent static electricity buildup in 75-ohm (round) coax cable antenna lead-in. Use with ground rod (fig. 7). 15-909 ... 2.99

(12) Coax nail-in clips. Secure RG-58 or RG-59 (round) cables to outside wood or interior baseboards. Black. 278-1660 ... Set of 10/99¢
White. 278-1659 ... Set of 10/99¢

(13) Coax feedthrough bushing. For professional looking entry/exit of coax (round) cable through walls. For RG-59 cable. 278-1643 ... Pkg. of 2/99¢
For RG-6 cable. 278-1644 ... Pkg. of 2/99¢

(14) Weatherproof crimp-on "F" connector for RG-6 or RG-6QS cable. Silicone filled. 278-236 ... 1.99

(15) Cable/tie marker. For cables up to 3/4" diameter. 278-1648. ... Pkg. of 10/2.79

(16) Beaded wire ties. UV stabilized. 6 1/4" long. 278-1619. ... Pkg. of 10/2.19

(17) Cable clips. With adhesive backing to keep cable secure. Accepts 1/4" cable. 278-1640 ... Pkg. of 10/2.79

(18) Private TV listener. Listen at any volume without disturbing others. Plugs into a 1/4" headphone jack on TV. With earphone, remote volume control and 15-foot cord. 15-587 ... 4.49

(19) Silicone rubber sealant. Ideal for sealing outdoor antenna wiring. Cures to a tough, flexible moistureproof seal. 3 oz. tube. 64-2314 ... 2.99

(20) **New** 75-piece black UV cable tie assortment. 25 pieces each size: 1/2" x 3 1/4", 3/4" x 4 1/4", 1/2" x 7 1/4". 278-1656 ... 5.99

(21) **New** Coax weather boots. Weatherizes connections. Fits RG-59 & RG-6. 278-1658 ... Pkg. of 2/99

TV/video game signal splitters



Automatic TV/video game switch. Switches to video game automatically when you turn game on. Accepts RCA plug from video game. Provides 75-ohm (round cable) input and output for antenna, TV or VCR. 15-1267. ... 8.99



With built-in signal splitter. Separate VHF and UHF outputs for TV. UHF: 300-ohm. VHF: 75-ohm. 15-1268. ... 6.99

With single 300-ohm output for TV. Accepts 75-ohm or 300-ohm input from TV antenna or VCR. 15-1269. ... 4.99



Send satellite signal through single or double-pane glass

So easy! Self-adhesive—just attach outside and inside components to window. It's bidirectional so it also passes power and control voltages from your satellite receiver through glass to a mini-dish. F connectors.

For single-pane windows. RSU 11916319 ... 69.99
For double-pane windows. RSU 11916327 ... 89.99
Replacement gaskets. RSU 11916335 ... 19.99



Protective box for outdoor splitters

Accepts a 2-way, 3-way or 4-way splitter and protects it from moisture. 270-258 ... 6.99

Wall plates add a "pro" look to your installation

All fit standard empty electrical wall box. Gold-plated connectors assure reliable hookups and maximum signal transfer.

(22) White wall plate with gold-plated F connector. Accepts 75-ohm cable with F connectors for hookup between wall and TV/VCR. 15-2031 ... 4.99

(23) White wall plate with gold-plated F connector and a 5-wire outlet for antenna rotator. Includes plug for rotator hookup. 15-2030 ... 5.99

(24) White wall plate with gold-plated F connector and a modular phone jack. Great for mini-dish satellite TV hookups. 15-2034. ... 6.99

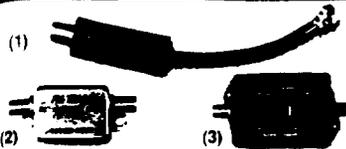
(25) Woodgrain wall plate with gold-plated F connector. 15-2033 ... 4.99

(26) White wall plate with two gold-plated F connectors. 15-2032 ... 5.99

(27) Wall plate for 300-ohm (flat wire) antenna hookup. Includes plug for 300-ohm (flat) antenna wire. 15-1186. ... 2.99

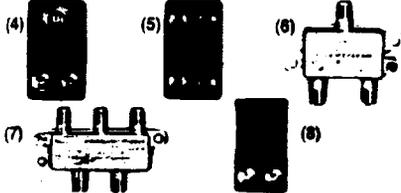
(28) Plug and socket for 300-ohm (flat wire) hookups. Idea for splicing and extending a 300-ohm (flat) antenna cable indoors. 15-1198 ... Set 1.99

There's more! Additional audio/video and satellite specialty products are available through RadioShack Unlimited™. See our in-store listings. Items with an RSU number are available for fast shipment direct to your door from RadioShack Unlimited. Shipping and pricing information on page 4. Prices apply at participating RadioShack stores and dealers. Not all items in all stores—ask about our ordering service (items subject to availability).



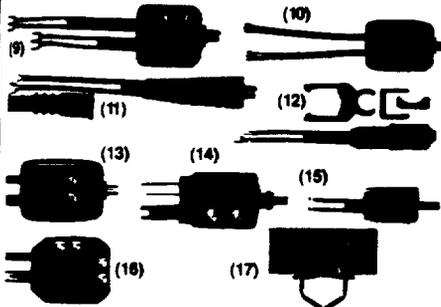
TV/VCR problem solvers

- (1) **RF interference filter.** Cuts CB/Ham interference. This 34-900MHz high-pass filter installs inline at the 75-ohm (F connector) input jack on TV or VCR. **15-579** 4.49
- (2) **FM trap.** Cuts "herringbone" interference on TV screen caused by strong FM signals. 75-ohm (F connector) input and output. **15-577** 3.99
- (3) **75-ohm attenuator.** Adjusts to eliminate picture distortion caused by signals that are too strong. 75-ohm (F connector) input and output. **15-578** 6.49



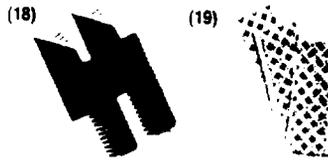
Splitters/combiners, matchers

- (4) **VCR-to-TV combiner/splitter.** Connects TV with single 75-ohm (F connector) input jack to a VCR that has separate 75-ohm VHF and 300-ohm (screw-terminal) UHF outputs. **15-1296** 3.49
- (5) **VCR-to-TV combiner/splitter.** Connects a VCR with single 75-ohm VHF/UHF (F connector) output jack to an older TV that has separate screw terminals for VHF and UHF inputs. **15-1297** 3.69
- (6) **Hybrid splitter/combiner.** Splits 75-ohm (round) coax cable to two 75-ohm outputs. **15-1141** 3.99
- (7) **Four-set hybrid splitter.** Same function as Fig. 6 but with four 75-ohm outputs. **15-1142** 6.99
- (8) **Matching transformer.** Connects 300-ohm (flat) antenna wire to 75-ohm (F connector) input. **15-1253** 2.99



Signal splitters & transformers

- (9) **Transformer/splitter.** 75-ohm input. Three 300-ohm screw-terminal outputs. **15-1139** 4.99
- (10) **Signal splitter.** 75-ohm input. Two 75-ohm VHF/UHF outputs. **15-1293** 4.99
- (11) **Indoor/outdoor matching transformer.** Matches 300-ohm screw terminals on antenna to 75-ohm (round) coax cable downlead. Reversible. **15-1140** 2.99
- (12) **Antenna-mount matching transformer.** As above but clips to antenna boom. **15-1143** 3.99
- (13) **Splitter with 75-ohm (F connector) input.** One 75-ohm (F connector) output for VHF. Two 300-ohm outputs (flat wire/screw terminals) for UHF TV & FM. **15-1252** 4.99
- (14) **Splitter with 6-ft. input cable and F connector.** 75-ohm input. Three 300-ohm outputs (flat wire/screw terminals) for VHF-TV, UHF-TV, FM. **15-1524** 5.99
- (15) **Splitter with 6-ft. input cable and F connector.** 75-ohm input. 75-ohm (F connector) and 300-ohm (flat wire) outputs. **15-1522** 4.99
- (16) **Splitter with 300-ohm (screw terminal) input.** 75-ohm output for VHF. Two 300-ohm outputs (flat wire and screw terminals) for UHF-TV and FM. **15-1251** 4.99
- (17) **Indoor/outdoor 300-ohm splitter/combiner.** Splits 1 or combines two 300-ohm (flat) antenna wires. **15-1135** 3.99

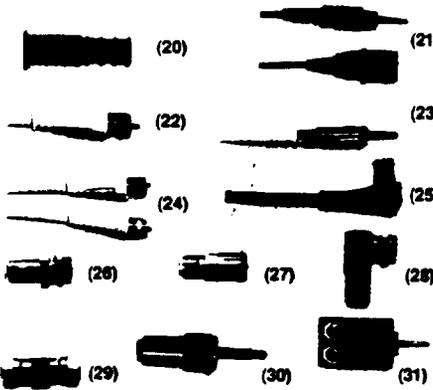


Wire and splitter management

- (18) **Supermount™ clear tape.** Double-sided foam tape with extra sticking power holds your switch box or splitter in place. Shear strength: 4 lbs per square inch. Includes four 1x3" strips. **64-2363** 3.19
- (19) **Standard double-sided tape.** Eight 1x3" strips. **64-2344** 1.99

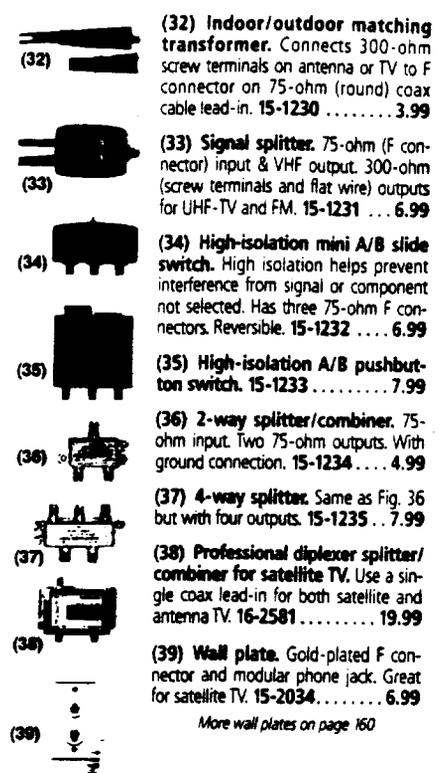
Coax cable and adapters

Whether you're adding a VCR, hooking up a video game or wiring an entertainment system, we've got everything you need. We'll help you get the best picture possible!



| Fig. | Description | Connectors | Cat. No. | Each |
|------|---------------------------------|---------------------------------|----------|-----------|
| 20 | Coax cable weather boots | Fits RG-59 and RG-6 coax cables | 278-1658 | .99/2 pk. |
| 21 | Mini-TV antenna cable, 6 ft. | 1/4" plug to F plug | 15-1531 | 4.99 |
| 22 | 75-ohm coax, 16 ft. white | F plug at each end | 15-1511 | 4.99 |
| — | 75-ohm coax, 25 ft. white | F plug at each end | 15-1534 | 8.49 |
| 23 | 75-ohm coax, 8 ft. | F plug to Motorola | 15-1528 | 3.99 |
| 24 | 75-ohm coax, 8 ft. | Push-on F each end | 15-1530 | 3.59 |
| — | 75-ohm coax, 4 ft. | Push-on F each end | 15-1529 | 2.79 |
| 25 | 75-ohm coax, 6 ft. | Push-on F each end | 15-1536 | 2.99 |
| 26 | Gold-plated F-81 cable coupler | F jack to F jack | 278-304 | 1.79 |
| — | F-81 cable coupler | F jack to F jack | 278-213 | .99 |
| 27 | Gold-plated push-on F adapter | F jack to F plug | 278-291 | 1.99 |
| — | Push-on adapter | F jack to F plug | 278-218 | 1.49 |
| 28 | Gold-plated right-angle adapter | F jack to F plug | 278-305 | 2.49 |
| — | Right angle adapter | F jack to F plug | 278-221 | 1.79 |
| 29 | Gold-plated coupler | F plug to F plug | 278-275 | 2.49 |
| — | Coupler | F plug to F plug | 278-219 | 1.49 |
| 30 | Gold-plated adapter | F jack to 1/4" plug | 278-267 | 2.09 |
| — | Adapter | F jack to 1/4" plug | 278-257 | 2.19 |
| 31 | 300 to 75-ohm adapter | Screw terminals to 1/4" plug | 15-1148 | 1.49 |

24K GOLD PLATED for reliability and superior connections



- (32) **Indoor/outdoor matching transformer.** Connects 300-ohm screw terminals on antenna or TV to F connector on 75-ohm (round) coax cable lead-in. **15-1230** 3.99
 - (33) **Signal splitter.** 75-ohm (F connector) input & VHF output. 300-ohm (screw terminals and flat wire) outputs for UHF-TV and FM. **15-1231** 6.99
 - (34) **High-isolation mini A/B slide switch.** High isolation helps prevent interference from signal or component not selected. Has three 75-ohm F connectors. Reversible. **15-1232** 6.99
 - (35) **High-isolation A/B pushbutton switch.** **15-1233** 7.99
 - (36) **2-way splitter/combiner.** 75-ohm input. Two 75-ohm outputs. With ground connection. **15-1234** 4.99
 - (37) **4-way splitter.** Same as Fig. 36 but with four outputs. **15-1235** 7.99
 - (38) **Professional diplexer splitter/combiner for satellite TV.** Use a single coax lead-in for both satellite and antenna TV. **16-2581** 19.99
 - (39) **Wall plate.** Gold-plated F connector and modular phone jack. Great for satellite TV. **15-2034** 6.99
- More wall plates on page 160*
- (40) **Mini A/B slide switch.** 75-ohm (F connectors). Two inputs and one output. **15-1247** 4.99
 - (41) **A/B pushbutton switch.** High isolation prevents interference from signal or component not selected. **15-1249** 6.99
 - (42) **A/B/C pushbutton switch.** Like #15-1249 but lets you select from three inputs. Reversible. **15-1248** 10.99
 - (43) **Terminating resistors.** Fit unused 75-ohm outputs on signal or distribution amps or splitters. Help prevent "ghosts" and signal loss caused by unterminated outputs. **15-1144** Pkg. of 2/1.29
 - (44) **Inline 75-ohm DC block.** Protects TV or VCR input by blocking out DC voltage used to power a remote signal amplifier. **15-1259** 1.49
 - (45) **Inline 75-ohm 6dB attenuators.**
 - (46) **F jack to jack.** **15-1257** 2.29
 - (47) **F jack to plug.** **15-1258** 2.29
 - (48) **Antenna and video source signal combiner.** Combines the signal from a TV antenna and the signal from a satellite receiver, cable box, VCR, etc. into one cable. Lets you select the video source on channel 3 or 4 using your TV's tuner. **RSU 12016507** 19.99

Don't see it here? Check our in-store RadioShack Unlimited catalog for hard-to-find parts and accessories. Shipping extra.

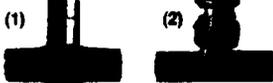
BNC connectors and adapters



Solderless right-angle male BNC. Installs easily on stripped RG-6 or RG-58 coax. Strain relief. 278-126 ... 3.99

Twist-on male BNC. RG-58 cable. 278-103 ... 2.99
 Gold-plated version of above. 278-102 ... 3.99
 Twist-on male BNC. For RG-59, RG-62. 278-104 ... 2.99

Solderless BNC male. For RG-58. 278-185 ... 3.69



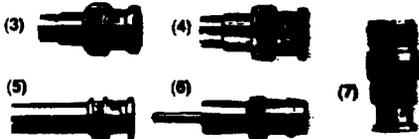
(1) BNC T-adapter. Female-female-female configuration. 278-111 ... 4.19
 (2) BNC T-adapter. Has female-male-female configuration. 278-112 ... 3.99
 TNC to BNC adapter. 278-144 ... 3.99
 Right-angle adapter. 278-116 ... 3.99

BNC chassis-mount jack. Type 1094. 278-105 ... 1.99

BNC female-to-female coupler. Type UG-914. 278-115 ... 1.99
 Gold-plated version of above. 278-119 ... 2.99

BNC 50-ohm terminator. Terminates Ethernet connections. 278-270 ... 2.19

BNC female to phono plug. 278-250 ... 3.29
 Gold-plated BNC female to phono plug. 278-301 ... 3.99



| Fig. | Accepts Plug | Fits Plug/Socket | Cat. No. | Each |
|------|--------------|------------------|----------|------|
| 3 | Phono | BNC | 278-254 | 2.99 |
| 4* | Phono | BNC | 278-303 | 3.99 |
| 5 | Motorola | BNC | 278-117 | 3.99 |
| 6 | BNC | Motorola | 278-180 | 3.29 |
| 7 | PL-259 | BNC | 278-120 | 3.49 |

*Gold-plated version.

UHF connectors and adapters



Premium PL-259 UHF-type coaxial connector. Silver-plated body and heat-withstanding, low-loss TEFLON® insulator. For RG-8, RG-58, RG-59 or RG-8 mini coax cable. 278-188 ... 3.99
 TEFLON® E.I. duPont De Nemours & Co., Inc.

Standard PL-259 UHF-type coaxial connectors. 278-205 ... Pkg. of 2/3.49

UG-176 reducers/adapters. Adapt standard PL-259 for RG-59 or RG-8/M coax cables. 278-204 ... Pkg. of 2/1.29

UG-175 reducers/adapters. Adapt standard PL-259 for RG-58 coaxial cable. 278-206 ... Pkg. of 2/1.29



(8) Solderless PL-259. Installs on RG-58 coaxial cable. 278-196 ... Pkg. of 2/2.69
 (9) No-crimp solderless PL-259 plug. For RG-58 cable. Installs by tightening one setscrew. 278-186 ... 3.29
 Solderless twist-on PL-259. Installs on RG-59 or RG-8/M coaxial cable. 278-191 ... 2.49
 Screw-type solderless PL-259. Installs on RG-58 or RG-59 coaxial cable. 278-193 ... 4.49

SO-239 chassis-mount coaxial socket. 278-201 ... 1.99

Double PL-259. Joins two SO-239s. For low-pass filter and other hookups. 278-192 ... 3.99

PL-258 coupler. Double female. Joins two PL-259s. 278-1369 ... 1.69

PL-259 T-adapter. Two SO-239 sockets to a PL-259 plug. Useful in beam antenna phasing lines. 278-198 ... 4.59

PL-259 inline right-angle adapter. Use in tight spaces to prevent damage to cable and socket. 278-199 ... 3.49

"Scanner" adapter. Accepts a PL-259 plug. Fits Motorola-type jack. 278-208 ... 1.99



| Fig. | Accepts | Fits | Cat. No. | Each |
|------|----------|--------|----------|------|
| 10 | BNC Plug | SO-239 | 278-121 | 3.49 |
| 11 | F | SO-239 | 278-258 | 3.49 |

N connectors and adapters



(12) UHF to N adapter. Adapts PL-259 to fit female N connector. 278-156 ... 4.69
 (13) Male N connector for RG-8. RSU 11292042 ... 2.89
 N dual female. RSU 11292265 ... 5.19
 Right-angle N adapter. RSU 11292281 ... 7.19

Mini UHF adapter/connectors



(14) Double-female adapter. Joins two male mini-UHF connectors. 278-172 ... 2.59
 (15) Twist-on connector. No crimp or soldering. For RG-58 coax cable. 278-168 ... 1.99



| Fig. | Accepts | Fits Mini-UHF | Cat No. | Each |
|------|------------|---------------|---------|------|
| 16 | PL-259 | Female | 278-174 | 3.99 |
| 17 | TNC Male | Female | 278-146 | 3.49 |
| 18 | TNC Female | Male | 278-148 | 3.99 |

European-TV adapter. Couples male F and PAL-type antenna jack. 278-261 ... 1.99

European-TV adapter. Couples female F connector and female PAL. 278-265 ... 1.99

TNC connector/adapters



No-crimp solderless male TNC. For RG-58 cable. No special tools needed—just tighten the setscrew. Accepts cable with solid or stranded center conductor. 278-184 ... 3.69

Twist-on TNC male RF connector. For RG-58 cable. Easy to use—simply cut cable ends to match specified length, align the cable's center conductor with the hole in connector body and twist it on. 278-140 ... 2.19

Panel-mount TNC. Fits 1/8" mounting hole. 278-132 ... 3.19

Push-on adapter. Converts a screw-on TNC male to push-on type. Useful with transportable cellular telephones. Impedance 50 ohms. 278-133 ... 3.99

Double-female TNC. 278-142 ... 2.19

VU-210XR Antenna 150-2157 Specifications

VU-210XR Antenna
(150-2157)

Specifications

Faxback Doc. # 17346

Gain:

| | |
|-----------------|---------|
| Low Band:..... | 6.2 dB |
| High Band:..... | 8.7 dB |
| FM:..... | 2.2 dB |
| UHF:..... | 11.1 dB |

Specifications are typical; individual units might vary. Specifications are subject to change without notice.

(IR-03/04/96)