



# Transmission Solutions

Complete End-to-End Transmission Systems  
for Television and Radio



# Thriving During Uncertainty and Change

Broadcasters and broadcast network operators face an unprecedented scope of change and uncertainty — from increasing global competition, skyrocketing electricity costs and new business models for content distribution, to complex modulation approaches and diminished pools of skilled RF engineers and technicians.

As broadcasters around the world tackle these challenges, they're turning to the company with the scale, technology, solutions, quality, reliability and customer support to help them come out ahead of the competition — Harris Corporation.



From high-power AM transmitters in Algeria and DAB+ services in Australia, to mobile TV services in the United States and comprehensive infrastructure rebuilds in Romania, Harris offers broadcasters the cost-saving solutions that companies need to thrive in the 21st century. As the only global company with products for virtually every broadcast band and modulation, Harris offers broadcasters solutions tailored to their unique requirements.

**Designing Transmitters for Years of Reliable, Cost-Effective Service**

For years, radio and television broadcasters approached their transmission requirements with a similar set of technologies and approaches. Often a new radio or TV transmitter could be installed with the confidence that the technology requirements would be the same for decades and a quality transmitter could remain in service for 20, 30 or more years.

Today, broadcasters are migrating to digital broadcasting systems — and the standards and technologies are changing rapidly. For broadcast transmitters to provide long-term service, they should be easy to upgrade to the newest modulation version — even supporting total software change-outs from one standard to another.

Successful transitions from analog to digital transmission as well as the deployment of mobile TV and other multimedia networks, can require scores of transmitters in greatly varying sizes and power levels, challenging the support logistics and expanding the costs of installing and maintaining transmitters. At the same time, the demand for lower operating costs and a more eco-friendly approach means that broadcasters require transmission systems that operate more efficiently.

	BAND	FREQUENCY	POWER LEVELS
<b>Radio</b>	AM	529 – 1705 kHz	1 kW – 2,000 kW
	FM	87.5 – 108 MHz	50 W – 80 kW
	DAB Band III	168 – 242 MHz	40 W – 10 kW
	DAB L-Band	1450 – 1492 MHz	25 W – 1.2 kW
	<b>Standards ▶</b>	■ AM ■ DAB/DMB ■ DRM+ ■ FM ■ HD Radio	
<b>Television</b>	Band I VHF	47 – 88 MHz	30 W to 120 kW
	Band III VHF	168 – 242 MHz	30 W to 120 kW
	UHF	470 – 872 MHz	10 W to 60 kW
	L-Band	1452 – 1492 MHz	30 W to 1.2 kW
	<b>Standards ▶</b>	■ ATSC ■ ATSC-M/H ■ CMMB ■ CTTB ■ DMB ■ DVB-T/T2 ■ FLO ■ ISDB-Tb ■ NTSC ■ PAL ■ PAL/M ■ SECAM	



With the largest installed base, the widest technology range, the broadest global transmission business and the greatest selection of software-upgradeable, power-friendly products, Harris offers the solutions and capabilities you need to thrive for years to come.

# Solutions for All Global Television Standards

Harris offers television and multimedia broadcasters solutions that are easy to install and maintain, and less expensive. With the Apex M2X™ multimedia exciter technology at the core of our Maxiva™ and Platinum™ product families, Harris offers VHF, UHF and L-Band broadcasters the assurance of reliable operation and outstanding operating efficiency. The Apex M2X technology is designed for change, adapting easily via software downloads from one modulation version to another, such as from DVB-T to DVB-T2 and from ASTC to ATSC MDTV, while also supporting transitions from analog to digital modulation.

Maxiva and Platinum transmitters address a wide range of power levels — making sparing and support logistics easier. These products also feature market-leading Harris PowerSmart® technology — offering greater power density for smaller space requirements and lower power requirements for reduced cost of operation. When Harris products are identified with the PowerSmart label, you have the assurance of 50-volt LDMOS device technology that delivers a dramatic increase in power density and energy efficiency.



## Apex M2X™

Featuring software-defined modulation standards and world-proven linear and nonlinear equalization, the Harris® Apex M2X™ multimedia exciter offers broadcasters a high-performance, high-power platform for virtually every global analog and digital television standard.



## Maxiva™ ULX

Maxiva™ ULX transmitters offer high power, small footprints and reliable broadband UHF operation in virtually every analog and digital television format, at power levels up to 18.9 kW COFDM and analog levels up to 62.8 kW.



## Maxiva™ UAX

For power requirements up to 2.5 kW COFDM and 3.75 kW analog, Maxiva™ UAX transmitters provide broadband UHF solutions from established analog modulation approaches to emerging digital multimedia and mobile standards.



## Maxiva™ UAX Compact Class

The Maxiva™ UAX Compact Class air-cooled UHF solid-state transmitter/translator/SFN gap filler incorporates technology of Harris® PowerSmart® and the Apex M2X™ multimedia exciter to provide today's broadcaster unmatched performance, reliability and quality up to 50 W.

## PowerSmart®

Look for the PowerSmart label for maximum power and efficiency in your Harris transmitter.



## Platinum™ VLX

Platinum™ VLX transmitters deliver outstanding power density and reliable operation with liquid cooling for Band III VHF analog or digital operation, at up to 9.6 kW COFDM, 12 kW ATSC and 16 kW analog in a single cabinet. Multiple cabinets can be combined for higher power levels.



## Platinum™ VAX

Supporting single cabinet configurations at power levels up to 6kW ATSC, 3.2 kW COFDM, 5 kW DAB/DMB and 8 kW analog in VHF Band III, Platinum™ VAX transmitters offer outstanding power efficiency and operating flexibility for analog and digital networks.



## LAX

Small footprints, high power density, software-driven exciters — the LAX has it all, delivering L-Band COFDM performance up to 1.2 kW in the 1450 to 1492 MHz band.

# The Broadest Range of Radio Transmitters — for Every Standard

Since we started serving the emerging radio broadcasting industry in 1922, Harris has provided a growing range of products. Today, leading broadcasters turn to us for solutions that include transmitters, audio consoles and networking systems, studio-to-transmitter links and data multiplexing solutions.

Only Harris supports the AM, FM and DAB radio bands with an outstanding range of analog and digital transmitter platforms. From low-power FM to very-high-power AM, Harris transmitters operate reliably and cost efficiently in radio networks around the globe.



## FlexStar® HDX

The elegance, reliability and capability of Harris radio modulation solutions are typified in the FlexStar® HDX exciter, which brings unrivaled performance and solid features to HD Radio™ applications as well as standard analog FM.



## Flexiva™

Flexiva™ is designed for low- and high-power requirements, up to 20 kW, while utilizing the most compact design on the market today. Featuring Harris® PowerSmart® technology in its transmitter architecture, the Flexiva line offers unmatched efficiency that makes it ideal for all FM applications.



## Platinum™ Z

The world's most popular FM transmitter, with more than 3000 units shipped at power levels from 5.5 kW to 40 kW, the Platinum™ Z and Z-HD+™ series are ideally suited for HD Radio™ operations.



### DAX™

For analog, DRM or HD Radio™ performance in a compact package, Harris DAX™ transmitters provide superior performance at output powers from 1 kW to 6 kW.



### DX® | 3DX®

With models from 10 to 1000 kW, Harris DX® and 3DX® transmitters operate reliably in analog, DRM and HD Radio™ applications around the world.



### Platinum™ VLX | VAX | LAX

Harris transmitters have powered many of the world's leading DAB networks, and the new Platinum™ VLX, VAX band III and LAX L-Band transmitters are ideal for emerging DAB and DMB multimedia applications.



### HPX®

The Harris® HPX® high-power tube transmitter delivers up to 80 kW for FM analog and HD Radio broadcasting in a compact design that offers greater reliability and power efficiency than solid-state transmitters.



### PR&E® Oasis™

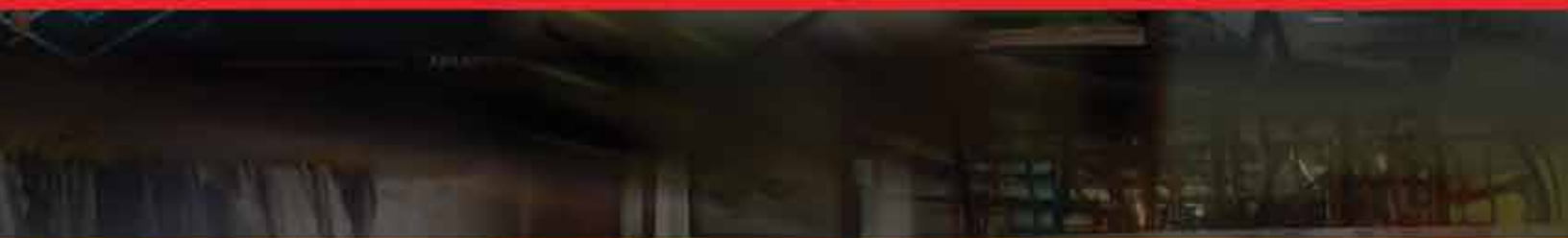
The Oasis™ from PR&E® is a standalone audio console for on-air and radio production applications that easily migrates from analog to digital on any timeframe. Additional PR&E solutions for radio include the RMXdigital® and NetWave® consoles and the VistaMax™ networkable audio management and routing system.



### Intraplex® HD Link™

The renowned Intraplex® product family provides an outstanding range of wired and wireless IP and audio networking solutions for radio broadcasters that make it easy to manage multiple transmitters and studios. For digital radio operations, Intraplex also offers the 950 MHz digital STL, HD Link™.

# Great Broadcasters and Great Harris Customers



Thriving in a competitive global economy requires more than strong products and comprehensive support. It also requires the opportunity to serve great customers. Over the years, Harris has had the privilege of working closely with many of the world's premier broadcasting organizations as they have built, extended and rebuilt their broadcast networks.



### USA Digital Transition

When more than 1,500 U.S. television broadcasters completed their transition to digital services in 2009, Harris played an essential role. Over 50% of the U.S. digital TV stations on air employ Harris transmitters, and our manufacturing facility, project management and support teams — the world's largest in each of these areas — ensured that these broadcasters made their deadlines. And transitions continue, as Harris equips many of these stations for mobile broadcast services.



### TV Anhanguera

As the one company offering a full line of broadcasting services and equipment, Harris has partnered with companies like Brazil's TV Anhanguera to provide servers, routers, branding, compression, signal processing and automation systems for their transition to digital and mobile broadcasting. Harris also has been privileged to provide them with ISDB-Tb transmitters. TV Anhanguera joined many of the leading broadcasters in Brazil, including Canal Futura, TV Bandeirantes, TV Morena, TV Centro America and TV Tem, in selecting Harris transmitters for their digital transition.



### Saudi Arabia Ministry of Culture and Information

For many broadcasters faced with modernizing their networks or managing their transition to digital services, the local support capability of the Harris dealers and the proven experience of Harris in managing large infrastructure rebuilding projects has been particularly essential. Saudi Arabia's Ministry of Culture and Information turned to Harris solutions for their modernization project, selecting 21 AM radio transmitters, 40 FM transmitters and 36 TV transmitters.



### S.N. Radiocomunicatii S.A.

S.N. Radiocomunicatii S.A., Romania's state-owned broadcast organization, looked for a strong partner to plan and implement a comprehensive \$115-million rebuild of its radio and TV transmission network. It selected Harris, and over a three-year period Harris installed 28 low-power (10 to 50 kW) AM transmitters, eight high-power (200 and 400 kW) AM transmitters, 106 FM radio transmitters and 45 TV transmitters at sites throughout Romania.



### Telediffusion D'Algerie

When the Algerian government's Telediffusion D'Algerie (TDA) needed to completely rebuild two high-power, medium-wave transmitter facilities, it selected Harris for comprehensive, turnkey project implementation. Harris provided two 600-kW AM transmitters, towers and antenna systems and complete project management services for a complex \$15 million project.



### Broadcast Australia

Harris has long been the partner of choice for organizations introducing totally new digital services. For example, Broadcast Australia Pty Ltd selected Harris DAB transmitters to launch the first DAB+ digital radio services for the Australian Broadcasting Corporation. With power levels from 125 W to 10 kW, the Harris DMB 670 offered Broadcast Australia an effective way to meet its network design requirements, while benefiting from a common transmitter platform across its sites.



With its global reach and local support, Harris offers broadcasters the services they need to plan, implement and maintain efficient, reliable broadcast networks. From comprehensive product training and project management services, to spares, repairs and product update offerings, Harris matches the industry's broadest product range with an equally effective set of support options. When planning your next transmission project, make Harris your first choice. With our world-class solutions and unmatched support, we'll be there for you for many years to come.

## ONE Company for Workflow Solutions Throughout the Media Chain

Harris is the ONE company delivering interoperable workflow solutions across the entire media delivery chain — providing today's broadcaster with a single, integrated approach to capitalize on the benefits of IT and mobile applications. By providing unparalleled interoperability across our product portfolio, Harris is able to offer customers integrated solutions that improve workflows, save money, enable new revenue streams and provide a migration path to emerging media business models. To meet the evolving needs of broadcast, distribution, government agencies and entertainment businesses, Harris is the ONE answer for change.

### Service and Support

At Harris, we are committed to customer service excellence. It is our goal to provide the highest level of support by applying a simple rule: We take ownership of helping our customers succeed. Our support teams consist of innovative technical experts who support all situations regarding product performance, integration and operational processing. We are adept at providing proven solutions, making workflows better and ensuring reliability of the product and system. At Harris, our experienced and dedicated teams stand ready to help you meet your goals for premium product performance, 100% up-time and reduced maintenance investment.

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**For more information on the complete line of radio and television transmission products, please visit [www.broadcast.harris.com](http://www.broadcast.harris.com).**

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