

Maxiva[™] UAX

Compact Air-Cooled UHF Television Transmitter
for Worldwide Analog and Digital Standards



PowerSmart[™] 

Combining Technologies

The Maxiva™ UAX air-cooled UHF solid-state transmitter incorporates Harris® PowerSmart™ technology and the Maxiva UAX multimedia exciter to provide today's broadcaster unmatched performance, reliability and quality. Designed with future broadcasting needs in mind, the Maxiva UAX transmitter is a single-transmitter platform capable of multiple modulation schemes.

The Maxiva UAX transmitter was developed to leverage complementary technologies from several Harris products: the Apex™ multimedia exciter, the compact and reliable ZX® FM and DMB 670 VHF transmission solutions, and the Harris PowerSmart design initiative for RF amplification. This powerful blend provides best-in-class performance with respect to transmitter size and functionality.

Harris® PowerSmart™ Technology Inside

Featuring Harris PowerSmart technology in its transmitter architecture, the Maxiva UAX line offers superior power and efficiency. New 50-volt LDMOS device technology delivers a dramatic increase in power density.

PowerSmart™ 

FEATURES

- PowerSmart technology, for best-in-class power efficiency and lowest operating costs
- Rugged, reliable design and construction
- Digital and analog power levels up to 2 kW and 3 kW, respectively
- Maxiva UAX Exciter, allowing easy migration from analog to digital or between different standards
- All-digital linear and non-linear pre-correction; optional Real-Time Adaptive Correction (RTAC™)
- Fully broadband PA modules — 470 to 862 MHz
- 1:1 PA module to power supply redundancy
- "Hot-pluggable" air-cooled linear RF amplifier modules
- Automatic restart after AC mains interruption; returns to previous operational mode
- Modular central control system for straightforward monitoring and in-depth diagnostics
- Harris® eCDi® Web-enabled remote GUI interface

Maxiva UAX Exciter — The Heart of the Transmitter

Utilizing the same electronics as the Harris Apex M2X™ multimedia exciter, the Maxiva UAX exciter takes digital and mobile TV to the next level. Harris digital exciters have logged more hours in "real-time" broadcast than all others combined. The Maxiva UAX exciter provides a flawless signal with complete technical and regulatory compliance for tube and solid-state digital transmitters.

The Maxiva UAX exciter supports a wide range of global digital standards including ATSC, ATSC mobile, DVB-T/H, ISDB-Tb, FLO, CTTB, CMMB and a range of analog TV standards, including NTSC and PAL.



RTAC™

The exclusive Real-Time Adaptive Correction (RTAC™), available as an option in the Maxiva UAX transmitter, enables the exciter to more fully utilize the transmitter power amplifier, yet maintain spectral mask compliance of the digital signal. The only system with simultaneous, linear and nonlinear, adaptive, memoryful precorrection, RTAC™ provides the highest level of correction to all types of RF amplifiers.

With RTAC™, the Maxiva UAX exciter continuously monitors transmitter output and any filter, while automatically adapting for system nonlinearities — keeping your station well within compliance and maximizing your coverage.

Global Monitoring and Control

The main system control is located in the low-power unit and communicates with each amplifier bay that has independent protection and control capabilities. Each PA module has dedicated control and monitoring to support on/off functionality and alarms for reflected power, temperature and current overloads.

For maximum reliability, the optional transmitter control system (available for 1 kW and 2 kW models only) includes two parallel levels of operational support: a basic mode and an enhanced mode. The basic mode provides minimal control of the transmitter platform using a small number of parallel signals, simple interface controls and front-panel indicators. This can be used during maintenance or as a backup to the main enhanced controller. The enhanced mode provides a front-panel, color touch-screen display, SNMP communications support and IP connectivity via the built-in eCDi™ Web GUI interface. Ideal for network operations, the control system can be accessed from anywhere in the world via TCP/IP over a telecom or network connection.

Make a Safe Investment

Because launching a new analog or digital service often requires a significant investment in new and unfamiliar technology, it also requires a partner with technical expertise and financial stability. Harris is uniquely positioned to provide both.

Harris has developed a solid core-competency backed by years of experience in maximizing digital performance, and has leveraged that expertise to provide transmission solutions for major digital transmission network rollouts and trials around the world. As a digital transmission leader, Harris offers field-proven systems and a range of support options from standard 24/7 telephone technical assistance and parts, to installations, training, full system design and field maintenance contracts.

BENEFITS

■ Easy Migration from Analog to Digital

The Maxiva UAX exciter supports a range of analog, digital and mobile standards and allows for a smooth conversion from analog to digital transmission. This flexibility, coupled with the optional RTAC correction, provides superior performance.

■ Maximum Efficiency for Cost-Effective Operation

Leveraging PowerSmart technology, the Maxiva UAX transmitter offers market-leading power efficiency, lower operating costs and reduced cost of ownership over the life of the transmitter.

■ Compact Footprint

Suited for crowded, shared transmitter sites, the Maxiva UAX transmitter reduces facility space requirements and simplifies installation.

■ High Power Density

Utilizing Harris PowerSmart technology, the Maxiva UAX transmitter achieves high power levels with simple air cooling.

■ Powerful, Straightforward Monitoring and Control

System control communicates with each amplifier bay that has independent protection and control capabilities. An optional color touch screen provides an overview of all operational parameters for maintenance procedures and performance checks.

■ Improved Up Time and Reduced Service Costs

Redundant power amplifier (PA) and universal power supply (PS) modules make on-air servicing a breeze, and eliminate costly interruptions. Lightweight pallets and modules facilitate overnight/ same-day shipping for simple, cost-effective spares holding. The Maxiva UAX transmitter also supports replacement of pre-tuned amplifier pallets in the field, eliminating the need for complex tuning after FET replacement.

Maxiva™ UAX

Product Line

10 W to 100 W



250 W and 500 W



1 kW



1 kW
(with optional dual exciters and rack)

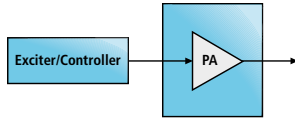


2 kW
(shown with dual exciters and rack)

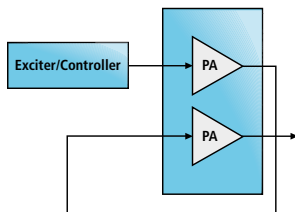


Maxiva UAX Configurations

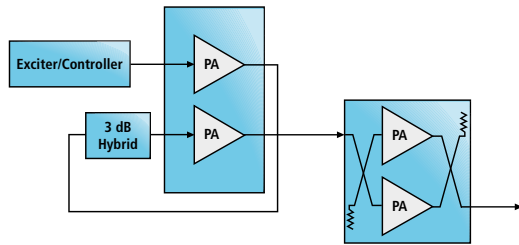
UAX 10
(10 W)



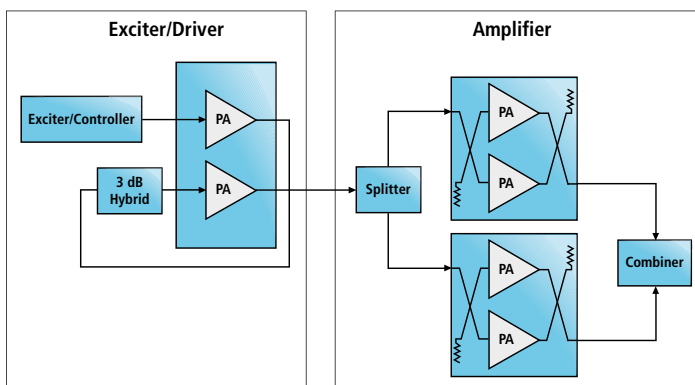
UAX 50
(50 W)



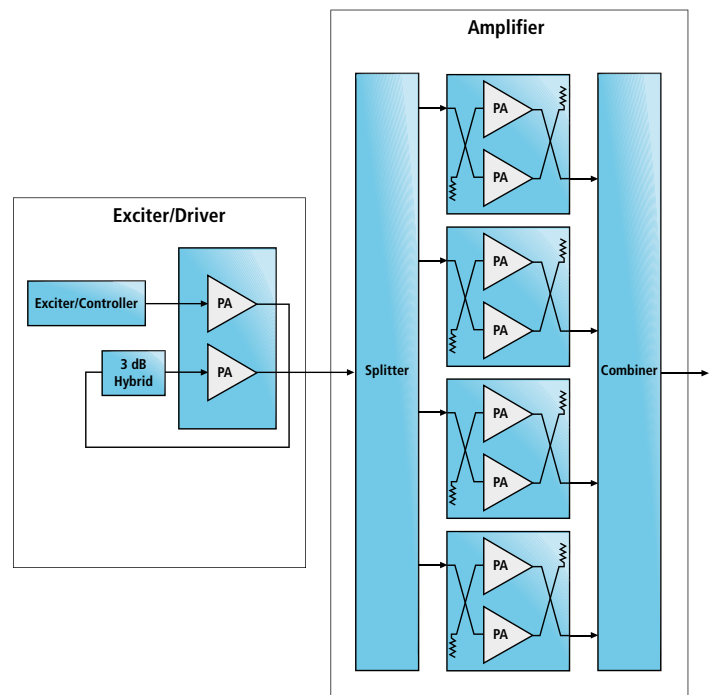
UAX 100
(100 W)



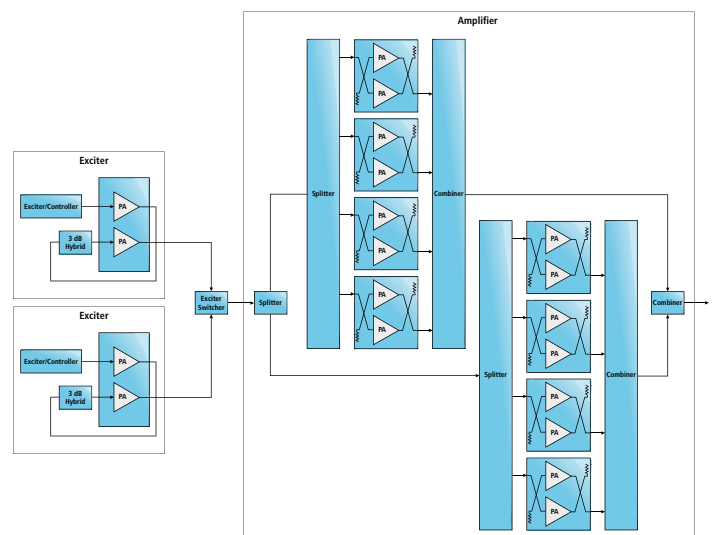
UAX 250
(250 W)

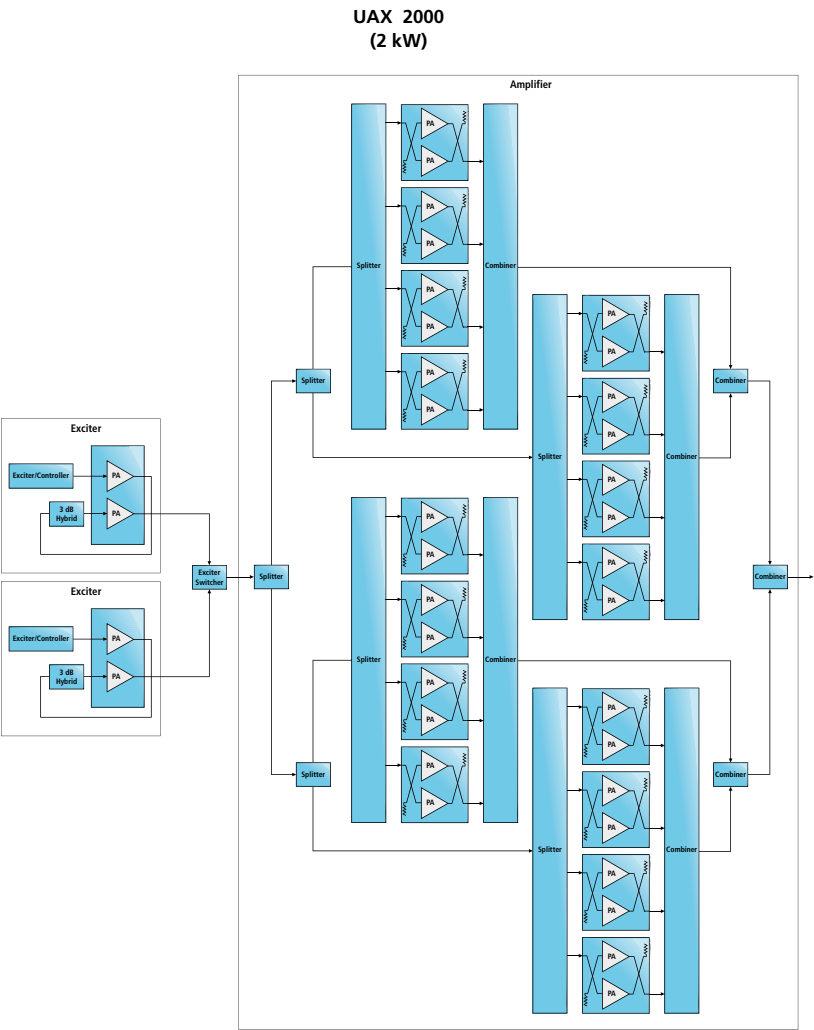


UAX 500
(500 W)



UAX 1000
(1 kW)





	Power after filter-Watts	Output Connector	Total Rack Space (*with dual exciters)
Maxiva UAX 10	10	"N" female	4RU
Maxiva UAX 50	50	"N" female	4RU
Maxiva UAX 100	100	"N" female	4RU
Maxiva UAX 250	250	"N" female	9RU
Maxiva UAX 500	500	"N" female	9RU
Maxiva UAX 1000	1,000	DIN 7-16	14RU/*21RU
Maxiva UAX 2000	2,000	1-5/8 in. EIA	24RU/*31RU

Specifications

Specifications are subject to change without notice.

General

Frequency Range 470 to 862 MHz
Channel Bandwidth 6, 7 or 8 MHz
RF Load Impedance 50 ohms, 1.1:1 VSWR over any single TV channel
RF Output Connector Type-N female, Type-N, 7-16 DIN and 1-5/8 in. EIA (dependent upon power level)

AC Mains

AC Mains Requirement Up to 750 W: 90 to 264 V AC, 47 to 63 Hz, dual IEC C20 inlets; 500 to 3000 W: 200 to 264 V AC 47 to 63 Hz, triple IEC C20 inlets for each 1500/3000 W chassis; configurable on-site for single or three-phase connection: 200 to 264 V AC single phase, 200 to 264 V AC delta, 200 to 264 V AC wye, or 350 to 450 V AC wye; optional in-rack AC distribution chassis provides individual circuit breaker protection for each AC input.
Power Factor: > 0.90

Environmental

Altitude Up to 13,123 ft (4,000 m) elevation above mean sea level
Ambient Temperature Range 32° to 113° F (0° to 45° C) at sea level (upper limit derated 35.6° F (2° C) per 984 ft (300 m) elevation AMSL)
Humidity 95%, non-condensing
Cooling Method Air input with built-in filter at front; air exhaust with built-in DC fans at rear; ducted air exhaust and/or input available as option

Analog

Analog Television Systems CCIR G, I, K, K1, M, N
Color Systems PAL, NTSC, SECAM
Sound Systems Monaural, BTSC, IRT, NICAM G
Power Output (Vision peak of sync) 15 W to 3 kW available
Analog Video Performance

Video Input	Two inputs 75 ohms, 0.7 to 1.4 V, 75 ohm, 34 dB return loss
Regulation of Output Power ¹	±3%
Variation of Output Power ²	±2%
Vision Sideband Response ³	PAL system G shown (other systems available)
-1.25 MHz and below	-20 dB or less
-4.43 MHz	-30 dB or less
-0.75 MHz to -1.25 MHz	+0.5 dB or less
-0.5 to +4.5 MHz	+0.5 to -0.5 dB
+5.0 MHz	+0.5 to -2.5 dB
+5.75 MHz and above	-35 dB or less
Frequency Stability ⁴	±150 Hz/month
Differential Gain ⁵	3%
Differential Phase ⁵	3°
Low Frequency Linearity ⁶	10%
Incidental Carrier Phase	
Modulation ⁵	±2°
Signal to Noise Ratio	>60 dB (weighted)
K Factor	2% or less with 2T sin2 pulse
20T Equivalent Gain & Delay	3% total baseline distortion
Spurious (Inter-Modulation)	
& Harmonic Radiation	-60 dB or better
In-Channel Intermodulation	
Distortion	-60 dB or better
Analog Sound Performance:	
Frequency Stability	±150 Hz/Month
Modulation Capability	±120 kHz peak deviation
Monaural Input	Adjustable 0 to +12 dBm, 600 ohms, balanced, >30 dB return loss
Pre-emphasis	Selectable 75 µs or 50 µs
Frequency Response	±0.5 dB, 40 Hz to 15 kHz
Harmonic Distortion	0.5%, 30 Hz to 15 kHz
FM Noise	60 dB r.m.s. with de-emphasis
AM Noise	50 dB r.m.s. from 30 Hz to 15 kHz
Synchronous AM Noise	40 dB r.m.s. at 400 Hz with ±25 kHz deviation
IRT Sound	Available on request
NICAM Sound	Available on request

DVB-T Specifications

Power Output (Average)	10 W to 2 kW available; measured at output of optional mask filter
Systems	DVB-T, standard ETS 300744, ISDB-Tb – Brazil standard
ASI Inputs	4 type BNC female; 75 ohms acc. to EN 50083-9 (2 main/2 hierarchical)
Output power reduction	0 dB to -6 dB
Crest factor	Max. 13 dB
Shoulder Level	< -37 dB (before mask filter)
END	≤ 0.7 dB
MER	> 34 dB
Harmonics (before filter)	< -40 dB
Central carrier Suppression	> 75 dB

Frequency stability (without external reference)	± 150 Hz/month
Frequency Offsets	2 mHz resolution

ATSC Specifications

Power Output (Average)	10 W to 2 kW available; measured at output of optional mask filter
System	ATSC A-53, 8-VSB DTV standard
Data Input	Data 19.39 Mb/s Impedance 75 ohms, unbalanced Standard SMPTE 310M Connector 2 BNC female, isolated
External Precise Frequency	
Input	Frequency 10 MHz, sinusoidal Impedance 50 ohms, unbalanced Level 0 to +10 dBm Connector BNC 50 ohm, female
Signal to Noise (EVM)	27 dB or better (4% or less)
Phase Noise	<104 dBc/Hz @ 20 kHz offset (ATSC A/64)
Pilot Frequency Stability	Less than ±150 Hz/month Less than ±3 Hz with internal or external PFC
Harmonic Radiation and	
Spurious	Meets mask requirements specified in FCC 5th and 6th report and order
Sideband Performance	Compliant with FCC radiation mask, when measured at the output of Harris-supplied output filter

Remote Control

Parallel REMOTE	DB-37, female
Relay Contacts	25 mA @ 24 V DC
Digital Inputs (TTL level)	Pulse duration ≥ 100 ms or permanent signal
Ethernet/SNMP (optional)	RJ-45, twisted pair

Compliance

RoHS 2002/95/EC
R&TTE 1999/5/EC
Safety: EN 60215
EMC: EN 301-489-1
FCC Part 73

- ¹ Variation of peak output power with a change in average picture level from black to white (0% to 100%).
- ² Peak-to-peak variation of peak sync voltage during one field using field test signal per EIA-508.
- ³ Response specified for transmitter operating into a resistive load of 1.05:1 VSWR.
- ⁴ After initial aging of 60 days.
- ⁵ Measured using 20% peak-to-peak amplitude swept video modulation with pedestal set at 10%, 50% and 90% APL.
All percentages relative to a blanking to white transition.
- ⁶ Measured using a 5-step staircase signal. Test signal #3, CCIR REC. #421-3 Derate maximum temperature by 35.6° F (2° C) per 1000 ft (305 m) above mean sea level.

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.

Warranty

Because we want to assure you that Harris stands beside its products and system solutions, our products carry a standard set of warranty services, which are competitive with — and in some cases outperform — others in the industry.

Service Packages

We offer value-add services that allow you to customize the level of services you need in meeting mission-critical performance levels. Our service package options offer many ways to upgrade your standard warranty by choosing the All-Inclusive OnePak, or by selecting individual services from our extensive portfolio. Our service and support advisors can assist in the selection of the individual services that best suit your requirements.

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For more information, please visit www.broadcast.harris.com/maxiva.

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