



MAXIVA™ UATK ULTRA-COMPACT/ VATK ULTRA-COMPACT

Low Power UHF/VHF Transmitter / Transposer / Gap Filler

The new Maxiva™ UATK & VATK Ultra Compact family of UHF & VHF solid-state Transmitters, Transposers (Translators) and on-channel Gap-Fillers expands upon the proven foundation of GatesAir low-power systems with PowerSmart® high-efficiency technology. The UATK & VATK products are designed using the latest Kintex modulation hardware and software. The UATK & VATK products support ATSC 1.0, ATSC 3.0 and ISDBTb modulation standards. It provides today's digital broadcaster with a suite of compatible products to accommodate any coverage application, along with unmatched performance, reliability and quality.



The Maxiva UATK/VATK Ultra-Compact family further extends the capabilities of the Maxiva series, providing a single family of transmission products suitable for all broadcast applications. The Maxiva Ultra-Compact provides pre-filter power levels up to 700W, in an exceptionally compact and space saving 1, 2 or 3 RU packages.

Maxiva™ UATK Ultra-Compact/ VATK Ultra-Compact Product Features

Maxiva UATK/VATK Ultra-Compact Platform includes:

- High efficiency broadband amplifier technology
- Power levels up to 700W (pre-filter average power)
- Frequency agile design
 - UHF Band IV/V, 470 to 702 MHz
 - VHF Band III, 170-240 MHz
 - VHF Band I, 54 to 88MHz
- Extremely compact, space-saving, 1, 2 or 3 RU 19" chassis
- Full local/remote control capability including:
 - Local touch-screen display
 - Web GUI interface (HTML5)
 - SNMP
- Capable of SFN and MFN Operation
- Automatic Adaptive Pre-correction Circuitry
- GLONASS/GPS Receiver for SFN Timing
- 2x ASI (BNC) & ASI over IP (RJ45)

Transposer / Translator:

- Supports ATSC 3.0, and ISDBTb (COFDM) and ATSC (8VSB) standards.
- Direct baseband conversion (zero IF)
- ATSC (8VSB) Regenerative option available for optimum performance

SFN Gap Filler:

- Includes a powerful echo cancellation circuit, 15dB of Gain Margin
- Low processing delay, < 10 μ S
- Cancellation window 20 μ S
- Selective cancellation window range 1.6 μ S to 820 μ S
- MER degradation < 2dB referenced to input

Available Options:

- DVB-S/S2 Satellite Receiver input card (including CAM interface)

Designed for digital broadcasting, the Maxiva UATK & VATK Ultra-Compact is a platform available in Transmitter, Transposer or SFN Gap Filler configurations for ATSC 1.0, ATSC 3.0, and ISDB-Tb networks. The Maxiva Ultra-Compact Series provides an ideal solution for extending market coverage and filling in coverage gaps in challenging situations, including busy urban areas that require greater building penetration.

The Maxiva UATK & VATK Ultra-Compact family of Transmitters / Transposers / Translators provide efficient and reliable re-broadcast of the received signal in a space saving, reliable and robust package. The Gap Filler configuration adds a powerful echo cancellation feature to deliver exceptional on-channel performance. This combination of products enables broadcasters to address any network coverage requirement.

Maxiva™ UATK/VATK Ultra-Compact

Maxiva™ UATK/VATK Ultra-Compact Front View (1RU)



Maxiva™ UAXT/VAXT Ultra-Compact Front View (2RU)



Maxiva™ UAXT/VAXT Ultra-Compact Front View (3RU)



Compact

Efficient

Broadband

Typical Input Configurations

2x Gbe + 2 x ASI



1x DVB-S/S2 Rx + 2 x ASI + 2 x Gbe



1x RF Rx + 2 x ASI + 2 x Gbe



RF In
(Translators)

2 Gbe + 2 ASI
(Transmitters & SFN Gapfillers)

Control Buttons

Display

USB Port

Control Ethernet Port

Maxiva™ UATK/VATK Ultra-Compact

Specifications

Specifications and designs are subject to change without notice

General	
RF Output Frequency Range	UAXT Ultra-Compact: UHF Band IV/V, 470 to 702 MHz; VAXT Ultra-Compact: VHF band III, 170-240 MHz
Transmission Standards	ATSC 1.0, ATSC 3.0 & ISDB-Tb
RF Channel Bandwidth	TV: 6, 7, or 8 MHz
Rated Output Power	Up to 700 Watts (before mask filter)
Output Power Reduction Range	0 to -10 dB
VSWR	Protected against open or short circuit, all phase angles. Factory pre-set to 4% of nominal nameplate power (VSWR = 1.5:1)
GPS Input	SMA female, 50 ohms, (+5 V DC @ 100 mA max output for active antenna)
1 PPS Input	BNC female, user selectable 50 ohms or high impedance termination
10 MHz Reference Frequency Input	BNC Female, 50 Ohms
Inputs/Outputs	
RF Output Connector	1 x Type N Female, 50 ohms, rear access, 7-16 DIN for > 200 W
Ethernet (Communications)	1 front, RJ-45
Control/Monitoring	HMTL5 Web GUI, SNMP V. 2, GPIO
ASI Inputs	2 Inputs BNC female 75 ohms
ASI over IP / STLTP	2 inputs, 10/100/1000BaseT
AC Power	
AC Power Input	100 to 240 V AC, 50/60 Hz, IEC320 C14 Plug, 380 V 3 Phase, 4 Wire 1 RU Module Optional
Power Factor (cos Ø)	> 0.95
Redundancy	Redundant power supply optional on some models
Environmental	
Operational Temperature Range	0° to 45° C (32° to 113° F)
Storage Temperature Range	-40 to +70° C
Relative Humidity	0 to 90%, non-condensing
Altitude	Up to 2,500 m (8,202 ft) above sea level, derate 2° C (3.6° F) per 300 m (984 ft) of elevation. (Altitude > 2,500 m on request)
Cooling Method	Forced air-cooled, internal fans, airflow front to rear
Acoustic Noise	≤65 dBA (front 1 m)
Transposer and Gap Filler (OFDM-TV & 8VSB-TV) Performance (Optional RF input Card)	
Power Output Stability	±0.5 dB
RF Load Impedance	50 ohms
Operating Load VSWR	Up to 1.4:1 at full power
RF Input Frequency Range	Band III 168 to 242 MHz, or Band IV/V 470 to 702 MHz
RF Input Connector	1 x Type N Female, 50 ohms, front access
RF Input Level	-80 dBm to -20 dBm (Standard Down Converter board)
	-80 dBm to 0 dBm (ATSC 1.0 Regenerative Down Converter board)
Selectivity	> 60 dB @ ± 4.2 MHz
Noise Factor	< 6 dB
Adaptive Echo Cancellation	Standard (applies to Gap Filler only)
Gain Margin	> -15 dB typical
Adjacent Channel Rejection	> 35 dB
Total Delay	< 10 µS
Echo Cancellation Window Size	20 µS
Selective Cancellation Window	1.6 µS (time shift from 2 to 820 µS)
Doppler Cancellation	Yes

Maxiva™ UATK/VATK Ultra-Compact Specifications

Specifications and designs are subject to change without notice

MER	Up to 34 dB, dependent on input MER
MER Degradation	< 2 dB degradation referenced to input, at <34 dB input MER
Response Variation	0.2 dB, typical
Spurious Output	< -60 dBc (after mask filter)
Harmonics	< -60 dBc after mask filter, <-35 dB before mask filter
Compliance / Certifications	
RoHS 2011/65/EU	ETSI EN 300 744
Directive 2014/53/EU	ETSI EN 302 755
Safety: EN 60215	ETSI EN 300 401 & ETSI TR101 496-1
EMC: EN 301-489-1	CE Marked
ATSC 3.0 Transmitter Performance	
Standard	A/300:2021, ATSC 3.0 System / A/322 / A/324 and related standards
Power Output Stability	+/- 0.2dB typical
RF Load Impedance	50 Ohms
MER	≥ 36 dB Typical
Shoulder Level	≤ -38 dB
Group delay	2nS, Typical
Constellation	QPSK, 16QAM, 64QAM, 256QAM & 1024QAM (4096QAM with expansion board)
Code Rate	2/15 to 13/15
Guard Interval	GI1_192 to GI12_4864 (Supports SNF applications)
FFT Size	8, 16 & 32
ISDB-Tb Transmitter Performance	
Standard	ABNT NBR 15601, ABNT NBR 15603
Inputs	2x ASI TS/BTS BNC (f), 75 Ohm and 2x RJ45 TS/BTS oIP
FFT	Mode 1 (2K), Mode 2 (4K), Mode 3 (8K)
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
MER	≥ 36 dB Typical
Hierarchical Modulation	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM
Time Interleaver	Supported
Partial Reception	Supported
ATSC-1.0 Specifications	
Standard	A/53, A/110
Power Output Stability	+/- 0.2 dB typical
RF Load Impedance	50 Ohms
Shoulder Level	≤ -40 dB
Modulation	8-VSB
Input Bit Rate	19.39 Mbit/s
Bandwidth	6 MHz
Max. Processing Delay	Up to 1 second (programmable)
Signal to Noise, EVM	>38 dB (typical >40 dB), EVM <2.9 (typical <1.0 %)
Shoulder Level	<-38 dB (Measured per ATSC doc. A/64B)
Sideband Performance	Compliant with FCC emission mask, when measured at the output of GatesAir supplied output filter
Harmonic Radiation & Spurious	Meets mask requirements specified in FCC 5th and 6th report and order

Maxiva™ UATK/VATK Ultra-Compact Models & Power Levels Specifications

Specifications and designs are subject to change without notice

Digital TV Model	OFDM Power Before Filter (W) Broadband ¹	OFDM Power Before Filter (W) Wideband ²	8VSB Power Before Filter (W) Broadband ¹	8VSB Power Before Filter (W) Wideband ²	Size	COFDM Broadband Efficiency
UHF Models						
UATK-15-UC	15	-----	20	-----	1 RU	8%
UATK-30-UC	30	-----	40	-----	1 RU	12%
UATK-50-UC	50	-----	70	-----	1 RU	16.5%
UATK-80-UC	80	-----	130	-----	1 RU	19.5%
UATK-150E-UC	150	-----	150	-----	1 RU	29.5%
UATK-250E-UC	200	300	350	400	2 RU	31%
UATK-400E-UC	400	400	400	400	2 RU	32%
UATK-450E-UC	450	550	700	800	3 RU	33%
UATK-700E-UC	700	750	900	1,000	3 RU	34%
Digital TV Model	OFDM Power Before Filter (W) Broadband ¹		8VSB Power Before Filter (W) Broadband ¹		Size	COFDM Broadband Efficiency
VATK-15-UC	15	-----	20	-----	1 RU	-----
VATK-30-UC	30	-----	40	-----	1 RU	-----
VATK-80-UC	80		120	-----	1 RU	17%
VATK-150-UC	150	-----	150	-----	1 RU	29%
VATK-250-UC	250	-----	350	-----	2 RU	31%
VATK-450-UC	450	-----	450	-----	2 RU	39%
VATK-500-UC	500	-----	700	-----	3 RU	40%
VATK-700-UC	700	-----	900	-----	3 RU	41%
Digital TV Model	OFDM Power Before Filter (W) Broadband ¹	OFDM Power Before Filter (W) Wideband ²	8VSB Power Before Filter (W) Broadband ¹	8VSB Power Before Filter (W) Wideband ²	Size	COFDM Broadband Efficiency
VATK-50L-UC	-----	50	-----	70	1 RU	-----
VATK-200L-UC	-----	200	-----	300	2 RU	-----
VATK-400L-UC	-----	400	-----	400	3 RU	-----

¹ Broadband PA's cover the frequency band with one PA type

² Wideband PA's cover the frequency band with two PA types