

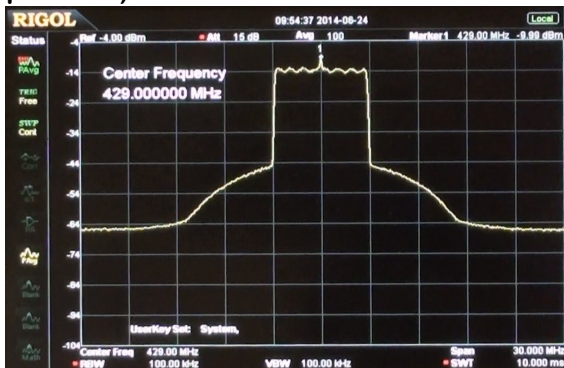
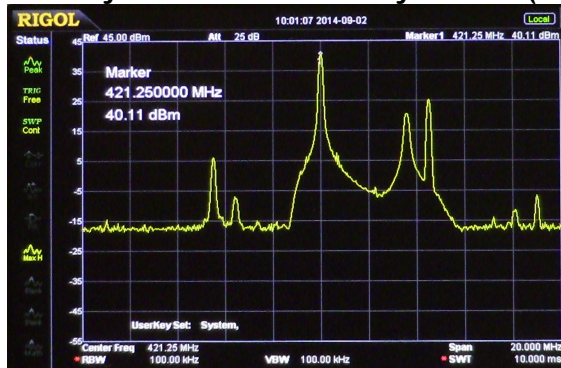


Model 70-10 AD 10 Watt, 70 cm TELEVISION TRANSMITTER

The KH6HTV-VIDEO Model 70-10 AD, Television Transmitter produces a 10 Watt (pep) (+40 dBm), Vestigial Upper Sideband (VUSB), NTSC, standard definition (480i), analog, TV signal. It can also produce a 3 Watt (avg), high-definition (1080p), digital TV signal with an optional, external DTV modulator. The 70-10AD consists of a CATV quality modulator and



a 10 Watt, RF linear power amplifier. The modulator is the same as used in CATV head-ends. The 70-10 AD is designed for operation in the 70 cm (420-450 MHz) amateur band. It is fully synthesized and operates on cable channels 57 through 61. The output power is adjustable in 5dB steps at 1 W, 3 W or 10 Watts (PEP). A VOX (Video Operated Xmit) feature is included which allows the transmitter to be keyed on/off by turning on or off the input video. A video monitor output is also provided. SMA connectors on the rear panel allow direct access to the RF power amplifier for connection of an external DTV modulator. Suitable DTV modulators are the Hi-Des model HV-100EH for DVB-T or the Drake DSE24 for CATV 64QAM. The 70-10 AD is a ruggedized, improved version of the original KH6HTV Video 10 watt transmitter. It is ideal for either portable, mobile or base station use. The 70-10 AD is the recommended transmitter for rugged, ARES field operations. Power requirements are +12 Vdc at 3.2 Amps (10 W), 1.6 A (3W) or 1.2 A (1 W). A switch on the rear panel allows the VUSB modulator to be turned off when using an external DTV modulator, thus dropping the current draw by 550mA down to only 650mA (1W position).



+40 dBm (10 Wpep) VUSB-TV Spectrum 2MHz/div +35 dBm (3 Wavg) DVB-T Spectrum, 3MHz/div
vertical scale = 10 dB/div Measured with Rigol DSA-815 Spectrum Analyzer

PARAMETER	Typical Performance	Notes
Output Power (analog TV) <i>(see instruction manual for details)</i>	10 Watts PEP (+40 dBm) 3 Watts (+35 dBm) 1 Watt (+30 dBm)	peak power on sync tips adjustable in -5dB steps with front panel rotary switch
Output Power (Digital TV) <i>(see manual for details)</i>	3 Watts avg (DVB-T QPSK) 2 Watts avg (CATV-64QAM)	using ext. DTV exciter adjustable in -5dB steps
Output Power vs. Supply Voltage	+40 dBm @ 12 - 13.8 Vdc +39 dBm @ 10 Vdc	analog VUSB-TV
RF Power Amplifier Gain	48 dB, nominal	
Amplifier Gain Flatness	± 1.5 dB	420 - 450 MHz
Amplifier Max Input Power	50 mW, +17 dBm	
LSB Rejection (analog VUSB)	> -20dB	LSB/USB ratio - see photo
Out of Band Spectrum Regrowth (Digital TV)	-30dB (DVB-T QPSK) -40dB (CATV 64QAM)	shoulder break-point see photo
Harmonics	-55 dBc typical	
Frequency Control	Synthesized	Up/Down Buttons LED Display
Available Channels 57 58 59 60 61 Frequency Offsets available 426.25 & 434.00 MHz	VUSB Carrier 421.25 MHz 427.25 MHz 433.25 MHz 439.25 MHz 445.25 MHz +125kHz IRC & -1.25MHz HRC available on special order	Only legal for use in 70 cm, USA amateur radio band (420-450 MHz) Not recommended for use on Ch. 61. Caution: CATV Exciter is capable of operating from 54 to 860 MHz offsets set by internal slide switch with opt. 70-2A VUSB Exciter
Modulation	NTSC, VUSB-TV	standard definiton 480i, analog
Channel Bandwidth	6 MHz	see typical spectrum plot
Video Input	1.0 Vptp into 75 Ω	for 87.5% modulation
Frequency Response	30 Hz to 4.2 MHz	
Audio Carrier	+4.5 MHz above video carrier	
Deviation	25 kHz	
A/V level	-15 dBc	adjustable -20 to -11 dBc
Audio Input (Mono)	Std. Line Level = 0 VU APL	
Impedance	600 Ω	
Pre-Emphasis	75 μs	
Frequency Response	50 Hz to 15 kHz	
Video Monitor Output	1.0 Vptp into 75 Ω	
Duty Cycle	100 %	heat sink & cooling fan included
DC Supply Voltage	13.8 Vdc	10 to 15 Vdc
DC Current @ 13.8 Vdc	3.2, 1.6 or 1.2 Amps 2.7, 1.1 or 0.65 Amps	10 W / 3 W / 1 W VUSB modulator turned off
Front Panel Controls	DC Power (Off On VOX) RF Power (1 W 3 W 10 W)	plus modulator dc power on/off on rear panel.
RF Connectors	N (f) Antenna plus SMA (f) Modulator Out & Amplifier Input	
Video & Audio Connectors	RCA (f)	
Dimensions & Weight	7 1/4" x 3 1/4" x 13" (w x h x d)	4.5 lbs
Accessories Included	SMA jumper cable, instruction manual & test report	

KH6HTV-VIDEO www.kh6htv.com e-mail: kh6htv@arrl.net

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NOTICE: *This TV transmitter is not FCC type accepted. Therefore, the use of this TV transmitter is only legal in the USA, amateur radio, 70 cm band (420 - 450 MHz). Owners and operators of this TV transmitter must be licensed amateur radio operators.*