

## New SSTRAN AMT5000 Specification Overview

### 5/20/2011

The AMT5000 AM transmitter kit is an FCC Part 15 compliant transmitter designed specifically for high efficiency to provide nearly the highest RF output level practical for any 100 mW transmitter.

Frequency Coverage:	Model AMT5000: 530 to 1700 kHz in 10 kHz steps. Model AMT5000-9K: 522 to 1710 kHz in 9 kHz steps.
Carrier Frequency Generation:	Crystal controlled PLL synthesizer
Frequency Selection Method:	8-position DIP switch
Frequency Tolerance @ 25°C:	±.003%
Modulation Type:	Amplitude Modulation (AM)
Maximum Modulation Level:	100% (130% positive modulation with external processor)
Power Input to Final RF Stage:	100 mW, adjustable to compensate for varying load conditions
RF Circuit Configuration:	MOSFET Class E switching mode, 98% RF transistor efficiency.
RF Spurious Emissions:	43 dB below carrier level.
Antenna:	118" wire (supplied with kit) or user-supplied 102" CB whip or 118" copper or aluminum pipe
Antenna Matching:	Low-loss iron-powder toroid loading coil series resonates with antenna capacitance. Jumper-selectable option for user-supplied external coil-loaded antenna.
Output Tuning:	1400kHz - 1700kHz: jumpers select toroid inductance, screwdriver adjusted air piston trimmer capacitor for peak tuning. 530kHz - 1400kHz: jumpers select supplemental inductors and toroid tap, screwdriver adjusted FILMTRIM trimmer capacitor for peak-tuning.
RF Output Metering:	Test points on circuit board for measuring RF stage input voltage and current with inexpensive user-supplied multimeter.
RF Grounding Options:	Jumper options for including/excluding RF isolation inductors in power feed lines to suppress conducted emission
Modulation Circuit Configuration:	Common-source MOSFET modulation driver in series with RF output MOSFET drain.
Internal Audio Response:	20 Hz - 20 kHz +/- 0.5 dB Jumper selects flat response or NRSC standard pre-emphasis.
Modulated RF 3 dB Bandwidth:	17 kHz (8.5 kHz audio response) with 20 ohm RF ground. 20.3 kHz (10.2 kHz audio response) with 30 ohm RF ground. Bandwidth is wider when supplemental inductors are jumper-selected at frequencies below 1400 kHz.
Audio Distortion:	Less than 0.5% THD through audio stages to final high-level modulator stage.
Audio Input Level:	Consumer Audio: -10 dBV, 0.316 Vrms Pro Audio: +4 dBu, 1.228 Vrms
Audio Input Impedance:	Consumer Audio: 18k ohms at 1 kHz Pro Audio: 14.3k ohms at 1 kHz
Audio Compression:	Compression ratio adjustable from 1:1 to 5:1. Attack time less than 1 ms. Medium release time suitable for both voice and music.
Audio Limiting:	Adjustable threshold. 15:1 compression above threshold. True RMS limiting ensures no distortion in limiting region.

Front Panel Controls and Indicators:	Audio input GAIN, MODULATION level, COMPRESSION ratio. Green LED power light.
Rear Panel Jacks:	Consumer Audio (unbalanced): 2 RCA audio in jacks mixed equally on board for stereo-to-mono conversion or two mono sources. 2.1 mm power input jack.
On board screw terminals:	Antenna RF ground Mono Pro Audio (balanced): +, -, gnd Power: +, -
Input Power Options:	12VAC wall adapter, 12VDC source, 12V battery source.
On-Board Power Conditioning:	RF bypassed bridge rectifier for 12VAC operation mode. Low dropout 12V regulator provides stable, regulated and filtered power to RF output stage even when operating from 12V battery (nominal lead acid battery voltage is 12.63V). Below 12.3VDC, input voltage is passed to output without regulation. Separate 5VDC regulator provides stable, regulated and filtered power to ICs.
Power Consumption:	120 VAC, 2 watts with standard 12VAC wall adapter.
Circuit Board:	7"W x 3.9"D x .062"H FR4, two layers, 1 oz. copper, top and bottom solder masks, top silkscreen with component identifiers and labels.
Enclosure Options:	Indoor: 1.5"H x 8.1"W x 4.2"D ABS plastic, color bone and black. Drilled, silk-screened front and rear panels. Outdoor: NEMA 4, 4X. 8.66"H x 4.72"W x 3.54"D, fiberglass, color gray